Dynamica

The HALO Range

UV-VISIBLE AND VISIBLE SPECTROPHOTOMETERS

REDVOLUTION

Dynamica

REVOLUTION

The Dynamica DNAmaster sets another benchmark in laboratory instrumentation. Dynamica's extensive manufacturing experience, commitment to innovation and continuous refinement, has resulted in an extensive range of precision laboratory instrumentation that fulfils the challenges of the contemporary and multifaceted laboratory environment. Versatilty, Flexibility, Performance, efficiency, design are hallmarks of Dynamica's dedication to excellence.

Halo UV Detective Software

UV Detective™ is powerful, user friendly software specifically designed for the control (and data processing) of selected Halo spectrophotometers from computers installed with the Windows® XP or Windows® 7 operating system. The versatile UV Detective can control all spectrophotometer operations such as photometry, wavelength scans, time scans and more. Further functions include storage of methods programs, saving of numerical and graphical data, downstream data processing, data transfer to commercial spreadsheets such as Microsoft® Excel and report generation.

Compatible Spectrophotometers	Halo RB-10 (optional), Halo DB-20/DB-20S (optional), Halo DB-30 (standard)
Control Functions	Wavelength setting, auto-zero, auto calibration, optical path calibration, accessories such as 6-cuvette positioner and sipper
Measurement Conditions	Start-up, setting, output and storage of measurement parameters
Measurement Function	Wavelength scan, time scan, quantitative analysis, multi-spectrum measurement, kinetic analysis, concentration measurement, nucleic acid / protein measurements
Data Output	Display of spectra, data and scans (time and spectrum)
Quantitative Methods	Multi-wavelength, input of constant, standard curve calibration (linear, quadratic, cubic and segment)
Data Processing	Integral, derivative, flatness, calculation (spectrum and constant), kinetic

Ordering Information

PRODUCT	CATALOG NUMBER#
UV Detective Software	UVDS-08-01

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Halo RB-10

UV / Visible Ratio Beam Spectrophotometer

The Halo RB-10 is a ratio beam spectrophotometer with an extensive array of built in functions for versatility and suitability to many analytical and biological applications. The ratio beam optics impart greater accuracy and reproducibility than the conventional, single beam optics.

Ratio Beam Optics

The absorbance signal in conventional single beam instruments can destabilize even during simple applications thus resulting in data inaccuracy. By contrast, ratio beam optics compensate and stabilize any signal fluctuations to increase accuracy and reliability even over prolonged usage such as in time course and kinetic measurements. The ratio beam principle involves splitting the beam generated by the light source by a half mirror. One of the split beams passes through the sample and is quantified by a detector whereas the other split beam which is representative of the absorbance signal is measured by an independent detector to obtain a signal reference. The ratio of the values from both detectors is then calculated to detect and compensate for any aberration in the energy of the light source or a temporal change of the optical elements and produce the highly stable photometric values.

Spectral Features

Boasting a 2 nm spectral bandpass the Halo RB-10 offers superior spectra and peak resolution.

Other specifications include an impressive wavelength accuracy of ±0.5nm, noise level 0.0005Abs (500nm) and stray light ≤0.05% (220nm NaI, 340nm $NaNO_2$).

Built-in and Diverse Range of Measurement Modes

Photometry Mode: Perform quantitative analyses in either absorbance or transmittance modes. Select from single wavelength, up to 6 multiple individual wavelengths, nucleic acid/protein A260/A280 ratios and set up calibration curves with up to 20 standards for concentration measurements.

Time Scan: Perform kinetic measurements for time periods ranging from 1 minute to >27 hours. Measurement intervals are factory preset and automatically selected when the scan time is set.

Wavelength scan: Perform a full spectral scan from 190 to 1,100nm at any of 8 incremental and preset selectable scan speeds starting from a high resolution 10nm/minute up to a swift 3,600nm /minute. Data is displayed as either numerical values or a graphical spectrum. Furthermore perform downstream processing of data, such as peak / valley search or smoothing, directly on board or with the optional Halo UV Detective software.

Dual Lamp Advantage

By virtue of the halogen tungsten and deuterium lamps typically found in higher end, analytical spectrophotometers the Halo RB-10 wavelength range is an impressive 190nm – 1,100nm. Furthermore a dual lamp system results in higher accuracy than corresponding xenon lamps. Lamp switching is automatic (by default at 340nm) and both lamps are long life.

User friendly operation and information rich LCD display

The 94mm x 70mm, backlit LCD screen with adjustable brightness control is sufficiently large to display a large array of data even in a graphical format. Furthermore single wavelength absorbance or transmittance data can be enhanced and enlarged using the unique zoom function. The seamless and chemical resistant keypad is designed for easy and quick selection of navigation and function features whilst protecting against any laboratory spills. Other unique features include the 'GO TO WL' short cut key to allow direct input of a new wavelength into an existing measurement.

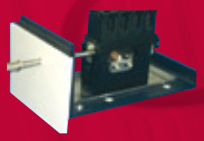
Validation Functions

To ensure optimum instrument performance, a self-diagnostic function incorporating a number of parameters is executed each time the Halo RB-10 is switched on. Furthermore the Halo RB-10 is equipped with a GLP/GMP feature for analyses requiring validation and auditing. Parameters such as wavelength accuracy, wavelength reproducibility, bandpass, baseline flatness, baseline stability and noise level can be all validated and the audit report printed.

Stand alone or PC Operation

The Halo RB-10 is fully equipped and capable of executing all functions in stand alone mode. Simply connect a standard laser printer for direct printouts of data and graphs. For more advanced analyses and reporting, the simple slide of a switch places the Halo RB-10 under the direct control of the optional UV Detective software installed on a computer with Windows® XP or Windows® 7 operating system.

4 Sample Cuvette Holder



A cuvette holder / changer with a 4 cuvette capacity is supplied as standard. Therefore measurement can be expedited by inserting the 4 cuvettes in tandem and manually sliding the holder / changer forwards or backwards to select the appropriate cuvette for measurement. The cuvette holder /changer is easily removed for cleaning purposes.

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RB-10 Accessories

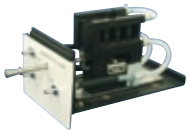
Rectangular Long-Path Cuvette Holder:

Designed for low concentration or low absorbance samples

> Accommodates 4 x long–path cuvettes

> Accepts cuvettes with 6 optical path lengths of: 10,20, 30, 40, 50 & 100 mm

Thermostatic Cuvette Holder



Designed for applications requiring incubation and/or maintenance of a sample at a constant temperature

> Water circulation maintains temperature stability

> Operating temperature range: Room Temperature to +40°C

> Temperature stability: ±0.3°C

> Complete with tubing for quick connection to water source (such as circulating water bath)

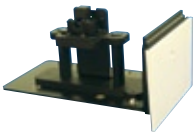
Test Tube Holder

Designed for the direct measurement of samples in a test tube with no need to transfer to a cuvette

> Spring mechanism automatically adjusts and accepts test tubes with diameters from 12 - 18 mm

> High ceiling cover accommodates even the tallest test tubes

Micro-cuvette Holder



Designed for measuring micro-volumes with 50µl micro-cuvette

> Wavelength range: 220 to 950nm

> Noise level: ±0.004Abs (with 50µl volumes)

Micro-cuvettes

Suitable for use in the micro-cuvette holder

> Made from quartz

> Available size: 50µl

Sample Sipper

Designed for the rapid measurement of multiple samples. Sample is sipped from an external tube directly into the sipper's integrated cuvette and automatically measured. The sample can also be recovered post-measurement.

> Minimum sample volume: 0.6ml

> Carryover: ≤1%

> Sipper cuvette capacity: ~50µl

> Optical path length: 10mm

HALO RB-10 SPECIFICATIONS	
Optics	Concave diffraction grating / Ratio beam Principle
Wavelength Range	190nm -1,100 nm
Spectral Bandwidth	2nm
Stray Light	≤0.05% (220nm NaI, 340nm $NaNO_2$)
Wavelength Accuracy	±0.5nm
Photometric Range	Absorbance: -3 to +3 %T: 0% to 300% Concentration: 0,000 to 9,999
Wavelength Scan Speed	10, 100, 200, 400, 800, 1,200, 2,400, 3,600 nm/minute
Baseline Stability	0.001 Abs/hr (500nm, after 2 hours)
Noise Level	0.0005 Abs (500nm)
Light Source	Tungsten-Halogen and Deuterium Lamps
Light Source Switching	Automatic switching at 340nm
Detector	Silicon Photodiode
Display	Back-lit LCD 94(W) x 70(H) mm
Dimensions	370(W) x 550(D) x 265(H) mm
Net Weight	20Kg
Gross Weight	25Kg
Power Requirements	110 - 220 V selectable, 50/60Hz

RB-10 Ordering Information

PRODUCT	CATALOG NUMBER#
Halo RB-10 UV-Visible Ratio Beam Spectrophotometer 110 - 220 V selectable, 50/60Hz	RB-10-220
Thermostatic Cuvette Holder with tubing	RB-10-TCH
Test Tube Holder (includes High Ceiling Cover)	RB-10-TTH
Micro-cuvette holder	RB-10-MCH
Micro-cuvettes - quartz 50µl / 10mm optical path length	RB-10-MC-50
Sample Sipper	RB-10-SS
UV Detective Software	UVDS-08-01

Halo DB-20/DB-20S

UV / Visible Double Beam Spectrophotometer

The Halo DB-20 is a high performance double beam spectrophotometer suitable for many analytical applications where a higher level of accuracy is required.

Genuine Double Beam Optics

True double beam optics ensure concurrent measurement of the sample and reference for improved stability, accuracy and reproducibility. The light beam is split in two using a half mirror so that one beam passes through the sample side whilst the other passes through the reference side. Both beams are then measured on individual detectors. The reference side beam also acts to stabilize photometric values in a similar manner to the ratio beam principle.

Spectral Features

Coma aberration elimination from the concave diffraction grating achieves a high resolution 1.5 nm (DB-20S : 1nm) spectral bandpass and certifies compliance of the Halo DB-20 to the stringent European Pharmacopoeia standards.

Other specifications include an impressive wavelength accuracy of ±0.3nm, noise level 0.0003Abs (500nm) and stray light ≤0.05% (220nm NaI, 340nm $NaNO_2$).

Built-in and Diverse Range of Measurement Modes

Photometry Mode. Perform quantitative analyses in either absorbance or transmittance modes. Select from single wavelength, up to 6 different individual wavelengths, nucleic acid/protein A260/A280 ratios and set up calibration curves with up to 20 standards for concentration measurements.

Time Scan: Perform kinetic measurements for time periods ranging from 1 minute to >27 hours. Measurement intervals are factory preset and automatically selected when the scan time is set.

Wavelength scan: Perform a full spectral scan from 190 to 1,100nm at any of 8 incremental and preset selectable scan speeds starting from a high resolution 10nm/minute up to a swift 3,600nm / minute. Data is displayed as either numerical values or a graphical spectrum. Furthermore perform downstream processing of data, such as peak / valley search or smoothing, directly on board or with the optional Halo UV Detective software.

Dual Lamp Advantage

By virtue of the long life, halogen tungsten and deuterium lamps, the Halo DB-20s wavelength range is an extensive 190nm – 1,100nm. Furthermore, the dual lamp system results in higher accuracy than corresponding xenon lamps. Lamp switching is automatic and selectable from a wavelength range of 325nm to 370nm.

User Friendly Operation and Information Rich LCD Display

The extra large 165mm x 122mm, backlit LCD screen with adjustable brightness control displays a large array of data also in graphical format. The seamless and chemical resistant keypad is designed for easy and quick selection of navigation and function features whilst protecting against any laboratory spills. Other unique features include the 'GO TO WL' short cut key to allow direct input of a new wavelength into an existing measurement.

Validation Functions

To ensure optimum instrument performance, self-diagnosis incorporating a number of parameters and wavelength calibration are automatically initiated upon start-up. Furthermore the Halo DB-20 is equipped with a GLP/GMP feature for analyses requiring validation and auditing. Parameters such as wavelength accuracy, wavelength reproducibility, bandpass, baseline flatness, baseline stability and noise level can be all validated and the audit report printed.

Stand alone or PC Operation

The Halo DB-20 is fully equipped and capable of executing all functions in stand alone mode. Simply connect a standard laser printer for direct printouts of data and graphs. For more advanced control, analyses and reporting, the simple slide of a switch places the Halo DB-20 under the direct control of the optional UV Detective software installed on a computer with Windows® XP or Windows®7 operating system.

On-Board Data Storage

Up to 20 operating programs and up to 10 sets of measurement data can be stored in the flash memory of the Halo DB-20. Programs can easily be recalled, edited and deleted. Furthermore, when in stand alone mode, data (in text format) can be downloaded directly to an external memory stick via the USB port and transferred for further processing to any computer loaded with commercial spreadsheets (such as Microsoft® Excel)

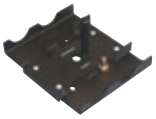
DB-20/DB-20S Accessories

Rectangular Long-Path Cuvette Holder

Designed for low concentration or low absorbance samples

> Accommodates 2 x long–path cuvettes (sample and reference sides)
> Accepts cuvettes with 6 optical path lengths of: 10,20, 30, 40, 50 & 100 mm
> Outer width: 12.5mm

Cylindrical Long-Path Cuvette Holder:



Designed for low concentration or low absorbance samples using a cylindrical cuvette

> Accommodates 2 x long–path cylindrical cuvettes (sample and reference sides)

Thermostatic Cuvette Holder

Designed for applications requiring incubation and/or maintenance of a sample at a constant temperature

> External water circulation maintains temperature stability
> Operating temperature range: Room Temperature to +40°C
> Temperature stability: ±0.3°C
> Complete with tubing for quick connection to water source (such as circulating water bath)

5-Cuvette Holder / Changer

Designed for mounting up to 5 standard 10mm cuvettes on the sample beam side.

> Total capacity: 5 cuvettes on sample beam side + 1 cuvette on reference beam side)
> Turret design cuvette holder for efficient changeover
> Manual change of cuvettes by turning front mounted knob
> No temperature control

6-Cuvette Holder / Changer (with electronic temperature control):

Designed for mounting up to 6 standard 10mm cuvettes with temperature control and stirring

> Total capacity: 6 cuvettes on sample beam side + 1 cuvette on reference side)
> Electronic change over – change cuvettes automatically at defined time intervals
> Electronic thermostat – set temperature between +20°C to +40°C
> Includes magnetic stirrer (and fleas)
> Requires water circulated cooling (tubing included)

Micro-cuvette Holder

Designed for measuring micro-volumes with 50µl micro-cuvette

> Wavelength range: 220 to 950nm
> Noise level: ~0.005Abs (with 50µl volumes)

Micro-cuvettes

Suitable for use in the micro-cuvette holder

> Made from quartz
> Available size: 50µl

Auto Sample Sipper (without temperature control)

Designed for the rapid measurement of multiple or large amounts of sample without the requirement for manual washing or changing of cuvettes. The sample is sipped from an external tube directly into the sipper's integrated cuvette and automatically measured. The sample can also be recovered post-measurement. Two models are available with and without electronic temperature control, the former maintains the flow cuvette section at a constant temperature.

> Minimum sample volume: 0.7ml
> Wavelength range: 190nm – 900nm
> Carryover: ≤1
> Sipper cuvette capacity: ~50µl
> Optical path length: 10mm.

Auto Sample Sipper (with temperature control)

The same features as the Auto sipper with the added convenience of electronic temperature control to maintain the flow cuvette section at a constant temperature.

> Temperature control range: +20°C to +40°C
> Requires water circulated cooling (tubing included)

Micro Flow Cuvette Holder

Designed for the continuous measurement of trace samples. The sample can be injected directly into the flow cuvette with a syringe or other injection device.

> Flow cuvette capacity: 70µl
> Pressure tolerance: Max. 0.1Mpa
> Optical path length: 10mm
> Teflon tubing provided

Glass Sample Holder

Designed for measuring the transmittance /absorbance of glass samples or filters.

> Glass sample thickness: 0.5mm to 5mm
> Glass sample dimensions: Min. 12x25mm to Max. 55x100mm

Film Sample Holder

Designed for measuring the transmittance to absorbance of thin film-like samples.

> Film sample dimensions: 25m (W), 30 to 50mm (H)
> Beam aperture: 10mm(W) x 20mm (H)

HALO DB-20 / DB-20S SPECIFICATIONS	DB-20	DB-20S
Optics	Concave diffraction grating / Double Beam Principle	
Wavelength Range	190nm -1,100 nm	
Spectral Bandwidth	1.5 nm	1.0 nm
Stray Light	≤0.05% (220nm NaI, 340nm $NaNO_2$)	≤0.10% (220nm NaI, 340nm $NaNO_2$)
Wavelength Accuracy	±0.3nm	
Photometric Range	Absorbance: -3 to +3 %T: 0% to 300%T Concentration: 0,000 to 9,999	
Wavelength Scan Speed	10, 100, 200, 400, 800, 1,200, 2,400, 3,600 nm/minute	
Baseline Stability	0.0003 Abs/hr (500nm, after 2 hours)	
Noise Level	0.0003 Abs (500nm)	
Light Source	Tungsten-Halogen and Deuterium Lamps	
Light Source Switching	Automatic switching selectable from 325nm to 370nm	
Detector	Silicon Photodiode	
Display	Back-lit LCD 165(W) x 122(H) mm	
Dimensions	505(W) x 590(D) x 265(H) mm	
Net Weight	29Kg	
Gross Weight	35Kg	
Power Requirements	110 - 220 V selectable, 50/60Hz	

DB-20/DB-20S Ordering Information

PRODUCT	CATALOG NUMBER#
Halo DB-20 UV-Visible Double Beam Spectrophotometer 110 - 220 V selectable, 50/60Hz	DB-20-220
Halo DB-20S UV-Visible Double Beam Spectrophotometer 110 - 220 V selectable, 50/60Hz	DB-20S-220
Rectangular Long-Path Cuvette Holder	DB-20-RLPH
Cylindrical Long-Path Cuvette Holder	DB-20-CLPH
Thermostatic Cuvette Holder (includes tubing)	DB-20-TCH
Manual 5-Cuvette Holder/Changer	DB-20-FCC
Auto 6-Cuvette Holder/Changer with temperature control and stirrer	DB-20-SCCT
Auto 6-Cuvette Holder/Changer without temperature control and stirrer	DB-20-SCC
Micro-cuvette Holder*	DB-20-MCH
Micro-cuvette - quartz: 50µl / 10mm optical path length*	MC-50
Auto Sample Sipper with temperature control*	DB-20-SST
Auto Sample Sipper without temperature control*	DB-20-SS
Micro Flow Cuvette Holder*	DB-20-MFH
Glass Sample Holder	DB-20-GSH
Film Sample Holder	DB-20-FSH
UV Detective Software	UVDS-08-01

Note : * Not Applicable for Halo DB-20S

Halo DB-30

UV / Visible Double Beam Spectrophotometer

The next generation Halo DB-30 double beam spectrophotometer boasts superlative performance characteristics for applications demanding the utmost sensitivity by combining higher signal to noise ratios with minimal stray light. This warrants the Halo DB-30 suitable to many diverse fields and industries such as pharmaceutical, food, sanitation, environment, biology, agriculture, geology, mineral, petrochemical, optical, life science, education, manufacturing and many others.

Exceptionally Low Stray Light

The intricate but elegant and innovative optical pathway is engineered to deliver outstanding double beam performance characteristics, in particular stray light which achieves an impressive low 0.010%T. The outcome is an increase in the linearity of absorbance characteristics for most samples thus increasing the scope of analytical applications particularly at higher concentrations.

Spectral Features

The asymmetric monochromator with long focal length results in improved sensitivity. Furthermore up to 6 slit widths are selectable and switchable (with the highest achievable resolution of 0.1 nm) thus allowing for the optimization of different applications.

Other specifications include an impressive wavelength accuracy of ±0.3nm, noise level 0.0003Abs (500nm), wavelength repeatability of ±0.1nm for the accuracy and reproducibility of analytical data and an absorbance range of –4 to +5 Abs for the analysis of high absorbance samples without the need for further dilution.

High Scan Speeds and Resolution

Select from 8 scan speeds starting at a high resolving 1nm/min. Coupled with the precise fine tuning of the photomultiplier tubes, a wavelength resolution of 0.1nm is maintained at even the fastest scan speed of 2,000 nm/min.

Powerful UV Detective PC Control

The Halo DB-30 is PC controlled using the UV Detective software (included with the instrument). Refer to page 2 for further details on the UV Detective software. UV Detective can also operate optional accessories such as the sample sipper and 6-cuvette holder.

The UV Detective software is powerful but user friendly using Windows® XP or Windows® 7, as depicted in the process flow below

> 1. Select Function (e.g. Photometry)
> 2. Set Method Parameters
> 3. Auto-zero or Baseline
> 4. Sample test
> 5. Data processing
> 6. Report Generation

Dual Lamp Advantage

By virtue of the long life, halogen tungsten and deuterium lamps, the Halo DB-30s wavelength range extends from 190nm – 900nm. Furthermore, the dual lamp system results in higher accuracy than corresponding xenon lamps. Lamp switching is automatic and selectable from a wavelength range of 325nm to 370nm.

Validation Functions

To ensure optimum instrument performance, self-diagnosis incorporating a number of parameters and wavelength calibration are automatically initiated upon start-up. Furthermore the Halo DB-30 and the UV Detective software is equipped with a GLP/GMP feature for analyses requiring validation and auditing. Parameters such as wavelength accuracy, wavelength reproducibility, bandpass, baseline flatness, baseline stability and noise level can be all validated and the audit report printed.

DB-30 Accessories

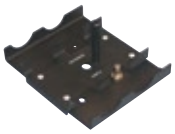
Rectangular Long-Path Cuvette Holder

Designed for low concentration or low absorbance samples

> Accommodates 2 x long–path cuvettes (sample and reference sides)

> Accepts cuvettes with 6 optical path lengths of: 10,20, 30, 40, 50 & 100 mm

Cylindrical Long-Path Cuvette Holder:



Designed for low concentration or low absorbance samples using a cylindrical cuvette

> Accommodates 2 x long–path cylindrical cuvettes (sample and reference sides)

Thermostatic Cuvette Holder

Designed for applications requiring incubation and/or maintenance of a sample at a constant temperature

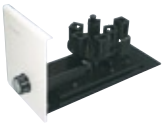
> External water circulation maintains temperature stability

> Operating temperature range: Room Temperature to +40°C

> Temperature stability: ±0.3°C

> Complete with tubing for quick connection to water source (such as circulating water bath)

5-Cuvette Holder / Changer



Designed for mounting up to 5 standard 10mm cuvettes on the sample beam side.

> Total capacity: 5 cuvettes on sample beam side + 1 cuvette on reference beam side

> Turret design cuvette holder for efficient changeover

> Manual change of cuvettes by turning front mounted knob - no temperature control

6-Cuvette Holder / Changer (with electronic temperature control):

Designed for mounting up to 6 standard 10mm cuvettes with temperature control and stirring

> Total capacity: 6 cuvettes on sample beam side + 1 cuvette on reference side

> Electronic change over – change cuvettes automatically at defined time intervals

> Electronic thermostat – set temperature between +20°C to +40°C

> Includes magnetic stirrer (and fleas)

> Requires water circulated cooling (tubing included)

6-Cuvette Holder / Changer (without electronic temperature control):

Designed for mounting up to 6 standard 10mm cuvettes without temperature control and stirring

> Total capacity: 6 cuvettes on sample beam side + 1 cuvette on reference side

> Electronic change over – change cuvettes automatically at defined time intervals

Micro-cuvette Holder

Designed for measuring micro-volumes with 50µl micro-cuvette

> Wavelength range: 220 to 880nm

> Noise level: ~0.001Abs (with 50µl volumes)

Micro-cuvettes

Suitable for use in the micro-cuvette holder

> Made from quartz

> Available size: 50µl

Auto Sample Sipper (without temperature control)

Designed for the rapid measurement of multiple or large amounts of sample without the requirement for manual washing or changing of cuvettes. The sample is sipped from an external tube directly into the sipper's integrated cuvette and automatically measured. The sample can also be recovered post-measurement.
Two models are available with and without electronic temperature control, the former maintains the flow cuvette section at a constant temperature.

> Minimum sample volume: 0.7ml

> Wavelength range: 190nm – 900nm

> Carryover: ≤1%

> Sipper cuvette capacity: ~50µl

> Optical path length: 10mm

Auto Sample Sipper (with temperature control)

The same features as the Auto sipper with the added convenience of electronic temperature control to maintain the flow cuvette section at a constant temperature.

> Temperature control range: +20°C to +40°C

> Requires water circulated cooling (tubing included)

Micro Flow Cuvette Holder

Designed for the continuous measurement of trace samples. The sample can be injected directly into the flow cuvette with a syringe or other injection device.

> Flow cuvette capacity: 70µl

> Pressure tolerance: Max. 0.1Mpa

> Optical path length: 10mm

> Teflon tubing provided

Glass Sample Holder

Designed for measuring the transmittance /absorbance of glass samples or filters.

> Glass sample thickness: 0.5mm to 5mm

> Glass sample dimensions: Min. 12x25mm to Max. 55x100mm

Film Sample Holder

Designed for measuring the transmittance / absorbance of thin film-like samples.

> Film sample dimensions: 25mm (W). 30 to 50mm (H)

> Beam aperture: 10mm(W) x 20mm (H)

HALO DB-30 SPECIFICATIONS	
Optics	Diffraction grating / Double Beam
Wavelength Range	190nm - 900nm
Spectral Bandwidth	Selectable: 0.1nm, 0.2nm, 0.5nm, 1.0nm, 2.0nm, 5.0nm
Stray Light	≤0.010%T (220nm NaI, 340nm $NaNO_2$)
Wavelength Accuracy	±0.3nm
Wavelength Repeatability	±0.1nm
Setting Wavelength	0.01nm increments
Photometric Accuracy (NIST 930D filter)	±0.002Abs (0~0.5Abs) ±0.004Abs (0.5~1Abs) ±0.008Abs (1~2Abs) ±0.3% T
Photometric Repeatability (NIST 930D filter)	±0.001Abs (0~0.5Abs) ±0.002Abs (0.5~1Abs) ±0.004Abs (1~2Abs) ±0.15% T
Measurement Modes	Abs, %T, Conc. E(S), E(R)
Photometric Range	Absorbance: -4 to +5 %T: 0% to 600%T Conc: -9,999 ~ +9,999 E(S), E(R): 0 ~ 600
Wavelength Scan Speed	Selectable: 1; 5; 20; 120; 300; 1,000; 1,600; 2,000 nm/minute
Wavelength Slew Speed	3,000nm/min.
Baseline Flatness	±0.001Abs (200~850 nm)
Baseline Stability	0.0004 Abs/hr (500nm, after 2 hours)
Noise Level	±0.0003 Abs (500nm)
Light Source	Tungsten-Halogen and Deuterium Lamps
Light Source Switching	Automatic switching, selectable from 325nm to 370nm
Detector	Photomultiplier
Instrument Control	PC with Windows® XP or Windows® 7 operating system
Dimensions	710(W) x 630(D) x 268(H) mm
Net Weight	50Kg
Gross Weight	56Kg
Power Requirements	110-220V AC (50/60Hz), 300VA

DB-30 Ordering Information

PRODUCT	CATALOG NUMBER#
Halo DB-30 UV-Visible Double Beam Spectrophotometer 220V AC, 50/60Hz with UV Detective Software	DB-30-220
Rectangular Long-Path Cuvette Holder	DB-30-RLPH
Cylindrical Long-Path Cuvette Holder	DB-30-CLPH
Thermostatic Cuvette Holder (includes tubing)	DB-30-TCH
Manual 5-Cuvette Holder/Changer	DB-30-FCC
Auto 6-Cuvette Holder/Changer with temperature control and stirrer	DB-30-SCCT
Auto 6-Cuvette Holder/Changer without temperature control and stirrer	DB-30-SCC
Micro-cuvette Holder	DB-30-MCH
Micro-cuvette - quartz: 50µl / 10mm optical path length	MC-50
Auto Sample Sipper with temperature control	DB-30-SST
Auto Sample Sipper without temperature control	DB-30-SS
Micro Flow Cuvette Holder	DB-30-MFH
Glass Sample Holder	DB-30-GSH
Film Sample Holder	DB-30-FSH

Halo VIS-10

Visible Spectrophotometer

Designed for reliability and value, the Halo VIS-10 combines full scanning capability with excellent resolution applicable to a wide range of routine and advanced procedures in the visible spectrum.

Optimum Optical Performance

The advanced single beam system utilizes a concave diffraction grating monochromator requiring fewer mirrors thus ensuring a shorter optical path and resulting in fewer aberrations and brighter optics (further enhanced with the high energy, long life halogen tungsten lamp). The outcome is greater compactness complemented with increased efficiency and reliability. The silicon photodiode detector commonly utilized in more advanced models also provides superior sensitivity. Furthermore a convex lens focuses the light beam and is especially useful for smaller volume samples.

Spectral Features

The spectral bandpass of 5nm ensures optimum performance with excellent spectra and peak resolution.

Other specifications include a wavelength accuracy of ±1nm, noise level 0.5% T (500nm, 100%T) and stray light ≤0.5% (360nm $NaNO_2$).

Built-in and Diverse Range of Measurement Modes

Photometry Mode. Perform quantitative analyses in either absorbance or transmittance modes. Select from single wavelength and set up calibration curves with up to 8 standards for concentration measurements.

Wavelength scan: Perform a full spectral scan from 330 to 999nm at a selectable scan speed ranging from a high resolving 60nm/minute up to a quick 800nm / minute. Data is displayed as either numerical values or a graphical spectrum in either absorbance or transmittance modes.

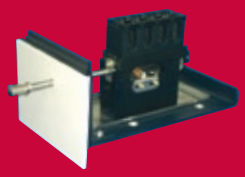
User friendly operation and information rich LCD display

The 89mm, backlit LCD screen with adjustable brightness control is sufficiently large to display a large array of data even in a graphical format. Data and spectra are also displayed in real time. The seamless and chemical resistant, keypad is designed with fewer keys for easier and quicker operation and also protects against liquid spills.

Validation Functions

To ensure continued instrument performance, a self-diagnostic function incorporating a number of parameters is executed each time the Halo VIS-10 is switched on. Furthermore the Halo VIS-10 is equipped with a built-in self calibration function which checks and verifies wavelength accuracy with a holmium oxide glass filter. The system memory then stores the wavelength scan baseline as a reference spectrum for blank subtraction.

Cuvette Holder and Large Sample Compartment



A cuvette holder / changer with a 4 cuvette capacity is supplied as standard. Therefore measurement can be expedited by inserting the 4 cuvettes in tandem and manually sliding the holder / changer forwards or backwards to select the appropriate cuvette for measurement. The cuvette holder /changer is easily removed for cleaning purposes. The spacious sample compartment can accept a variety of accessories for various applications including tall test tubes (with optional test tube holder).

Dynamica

VIS-10 Accessories

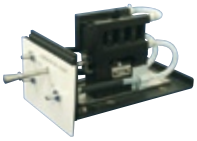
Rectangular Long-Path Cuvette Holder

Designed for low concentration or low absorbance samples

> Accommodates 4 x long–path cvettes

> Accepts cuvettes with 6 optical path lengths of: 10, 20, 30, 40, 50 & 100 mm

Thermostatic Cuvette Holder



Designed for applications requiring incubation and/or maintenance of a sample at a constant temperature

> Water circulation maintains temperature stability

> Operating temperature range: Room Temperature to +40°C

> Temperature stability: ±0.3°C

> Complete with tubing for quick connection to water source (such as circulating water bath)

Test Tube Holder

Designed for the direct measurement of samples in a test tube with the need to transfer to a cuvette

> Spring mechanism automatically adjusts and accepts test tubes with diameters from 12- 18 mm

> High ceiling cover accommodates even the tallest test tubes

HALO VIS-10 SPECIFICATIONS	
Optics	Concave diffraction grating / Single Beam Principle
Wavelength Range	330nm -999 nm
Spectral Bandwidth	5nm
Stray Light	0.5%T (360nm $NaNO_2$)
Wavelength Accuracy	±1nm
Photometric Range	Absorbance: -0.17 to +2 %T: 0% to 150%
Wavelength Scan Speed	60 - 800 nm/minute
Baseline Flatness	±0.005 Abs
Noise Level	0.2%T (500nm, 0%T) / 0.5%T (500nm,0%T)
Light Source	Tungsten-Halogen Lamp
Detector	Silicon Photodiode
Display	Back-lit LCD 89(W) x 89(H) mm
Dimensions	400(W) x 360(D) x 180(H) mm
Net Weight	15Kg
Gross Weight	19Kg
Power Requirements	AC 110-220V ± 10%, 50/60Hz

Ordering Information

PRODUCT	CATALOG NUMBER#
Halo VIS-10 Visible Spectrophotometer 220V ±10%, 50/60Hz	VIS-10-220
Rectangular Long-Path Cuvette Holder (holds 4 x cuvettes)	VIS-10-LPH
Thermostatic Cuvette Holder with tubing (excludes long-path cuvettes)	VIS-10-TCH
Test Tube Holder (includes High Ceiling Cover)	VIS-10-TTH

Halo SB-10

UV / Visible Single Beam Spectrophotometer

The Halo SB-10 single beam spectrophotometer combines exceptional value with precision spectrophotometry in an uncomplicated package.

User friendly operation and information rich LCD display

The 94mm x 70mm, backlit LCD screen with adjustable brightness control is sufficiently large to display a large array of data. The seamless and chemical resistant, keypad is deigned for easy and quick selection of navigation and function features whilst protecting against any laboratory spills.

Spectral Features

The Halo SB-10 can achieve a 2 nm spectral band pass for superior spectra and peak resolution with its single beam optics.

Other specifications include a wavelength accuracy of ±0.5nm, baseline stability ±0.002Abs/hr (500nm) and stray light ≤0.05%T (220nm Nal, 340nm NaNO2).

Photometry

Perform quantitative analyses in either absorbance or transmittance modes and in single wavelengths within a wavelength range of 190-1100nm.

Dual Lamp Advantage

By virtue of the halogen tungsten and deuterium lamps typically found in higher end, analytical spectrophotometers the Halo SB-10s wavelength range is an impressive 190nm – 1,100nm. Furthermore a dual lamp system results in higher accuracy than corresponding xenon lamps. Lamp switching is automatic (by default at 340nm) and both lamps are long life.

Validation Functions

To ensure optimum instrument performance, a self-diagnostic function incorporating a number of parameters is executed each time the Halo SB-10 is switched on. Furthermore the internal memory can store up to 200 calibration curve data.

Stand alone or PC Operation

The SB-10 is easy to use in stand alone mode. For advance function including multiple wavelength analysis, spectrum scanning and DNA/protein analysis, the optional UV detective for SB-10 can be installed on a computer to control the SB-10 and extend its function further.

4 Sample Cuvette Holder

A 4 cuvette capacity holder is supplied as standard. Measurement can be expedited by inserting the 4 cuvettes in tandem and manually sliding the holder forwards or backwards to select the appropriate cuvette for measurement.

HALO SB-10 SPECIFICATIONS	
Optics	Single Beam Principle
Wavelength Range	190nm -1,100 nm
Spectral Bandwidth	2nm
Measurement Modes	Abs, %T, E(S)
Stray Light	<0.05% (220nm NaI, 340nm $NaNO_2$)
Wavelength Accuracy	±0.5nm
Photometric Range	Absorbance: -3 to +3 %T: 0% to 300%
Baseline Stability	±0.002 Abs/hr (500nm)
Light Source	Tungsten-Halogen and Deuterium Lamps
Light Source Switching	Automatic switching at 340nm
Display	Back-lit LCD 94(W) x 70(H) mm
Dimensions	470(W) x 370(D) x 180(H) mm
Net Weight	20Kg
Gross Weight	25Kg
Power Requirements	220 V selectable, 50/60Hz

SB-10 Ordering Information

PRODUCT	CATALOG NUMBER#
Halo SB-10 UV-Visible Single Beam Spectrophotometer 220 V, 50/60Hz	SB-10-220
UV Detective for SB-10	UVDS-SB-10

Dynamica

The HALO Range

UV-VISIBLE AND VISIBLE SPECTROPHOTOMETERS

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05/2012

Dynamica

The VELOCITY Range

MICROCENTRIFUGES

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02/2014

Dynamica

The VELOCITY Range

MICROCENTRIFUGES

REVOLUTION

VELOCITY 6µ

Micro Fuge

The Velocity 6µ and 13µ are designed to operate easily and save space. They also offer a high degree of convenience and ultimate safety for your laboratory application.

Features & Characteristics

- Microtubes rotor and 8-strip rotor included
- Rotors can be easily exchanged without tools
- Compact design
- Simple & user-friendly operation
- Quiet operation (noise level ≤ 45dB)

VELOCITY 13µ

Mini Fuge

Features & Characteristics

- Maximum speed 13,500rpm (12,300 xg)
- Choices of rotors for 12 x 1.5/2.0ml tubes and 32 PCR tubes or strips
- Compact design
- Rapid acceleration (≤12 sec) and deceleration (≤16 sec)
- Autoclavable rotor
- Safe operation with lid-lock function
- User-friendly control panel with LCD display

VELOCITY 6µ & 13µ Specifications

MODEL	VELOCITY 6µ	VELOCITY 13µ
Maximum Speed	6,000 RPM	13,500 RPM
Maximum RCF	2,910 x g	12,300 x g
Run Time	Continuous	Up to 30 minutes or HOLD (Continuous)
Rotor (Standard)	8 x 1.5/2.0 ml, 2 x 8-strip PCR or 16 x 0.2 ml PCR tubes	12 x 1.5/2.0 ml tubes
Rotor (Optional)	-	32 x 0.2 ml PCR tubes or strips
Dimensions	155 x 175 x 125 mm (w x d x h)	208 x 245 x 145 mm (w x d x h)
Weight	1 kg	4.4 kg
Power Supply	AC 110-220V 50/60Hz	AC 200-240V 50/60Hz or AC 110-120V 50/60Hz

VELOCITY 6µ & 13µ Ordering Information

PRODUCT	CATALOG NUMBER#
Velocity 6µ Micro Fuge, with microtube rotor & tube-stripes rotor, 110-220V, 50/60Hz	V6U
Velocity 13µ Mini Fuge, with FA13A rotor & FA13.02 Adapters, 200-240V, 50/60Hz	V13U-2A
Velocity 13µ Mini Fuge, with FA13A rotor & FA13.02 Adapters, 110-120V, 50/60Hz	V13U-1A
12 place rotor, 1.5/2ml x 12, 13,500rpm	FA13A
32 place rotor, 0.2ml x 32 PCR tubes or 4x 8-strip PCR tubes, 6,000rpm	FA6B
0.2ml PCR tube rotor adapter, used with FA13A rotor, 12pcs/pk	FA13.02
0.5ml PCR tube rotor adapter, used with FA13A rotor, 12pcs/pk	FA13.05

VELOCITY 15µ / 15µ R NEW

High Speed Microcentrifuge

The Dynamica Velocity Microcentrifuge is now available with refrigerated model, Velocity 15µR. Velocity 15µR is built with a powerful refrigeration module and is able to maintain the sample temperature below 2˚C at the highest speed.

The Velocity 15µ / 15µR High Speed Microcentrifuge are designed to accelerate your laboratory works by providing excellent and reliable performance. The Velocity 15µ series are compact and easy to use.

Features & Characteristics

- Maximum speed 15,000rpm (21,380 xg)
- Choices of rotors for 24 x 0.2/0.5/1.5/2.0ml tubes, 18 x 5ml tubes, 36 x 0.5ml tubes and 4x 8-strip PCR tubes
- Powerful refrigeration for model Velocity 15µR
- Autoclavable Bio-safe rotors
- Advanced air-cooling technology to lower rotor temperature for model Velocity 15µ
- Automatic lid release after run
- Dual door interlock safety design
- User-friendly control panel with large LCD display

FAS15B

VELOCITY 15µ / 15µR Specifications

VELOCITY 15µ SPECIFICATIONS	Velocity 15µ	Velocity 15µR
Maximum Speed	15,000 RPM	
Maximum RCF	21,380 x g	
Run Time	30 seconds to 99 minutes or HOLD (Continuous)	
Rotor (Standard)	24 x 1.5/2.0 ml tubes	
Rotor (Optional)	18 x 5 ml tubes, 36 x 0.5 ml tubes, 4 x 0.2ml 8-strip PCR tubes	
Temperature Setting Range	N/A	-20˚C to 40˚C
Noise Level	≤ 58dB	≤ 56dB
Dimensions (w x d x h)	280 x 364 x 266 mm	338 x 580 x 324 mm
Weight	12 kg	30 kg
Power Supply	AC 200-240V 50/60Hz or AC 110-120V 50/60Hz	

Velocity 15µ Ordering Information

PRODUCT	CATALOG NUMBER#
Velocity 15µ High Speed Microcentrifuge, with FAS15B aluminum alloy rotor kit, 200-240V, 50/60Hz	V15U-220
Velocity 15µ High Speed Microcentrifuge, with FAS15B aluminum alloy rotor kit, 110-120V, 50/60Hz	V15U-110
Velocity 15µ High Speed Refrigerated Microcentrifuge, with FAS15B aluminum alloy rotor kit, 200-240V, 50/60Hz	V15UR-220
Velocity 15µ High Speed Refrigerated Microcentrifuge, with FAS15B aluminum alloy rotor kit, 110-120V, 50/60Hz	V15UR-220
18 place rotor with lid, 5ml x 18, 15000rpm	FAS15A
24 place rotor with lid, 1.5/2ml x 24, 15000rpm	FAS15B
36 place rotor with lid, 0.5ml x 36, 15000rpm	FAS15C
4 place 8-strip PCR tubes rotor with lid, 15000rpm	FAS15D
0.2ml rotor adapter, used with FAS15B 24 place rotor, 24pcs/pk	FAS15B.02
0.5ml rotor adapter, used with FAS15B 24 place rotor, 24pcs/pk	FAS15B.05
0.2ml rotor adapter, used with FAS15C 36 place rotor, 36pcs/pk	FAS15C.02

Other Velocity Series Benchtop Centrifuges

Velocity 14

Velocity 14R

Velocity 18R

Velocity 10R

Halo XB-10 / VIS-20

UV / Visible and Visible Touch Screen Spectrophotometer

The Halo XB-10 and VIS-20 are high quality, touch screen operation, compact measurement systems for daily analysis in education, quality control and basic research.

Compact Optics with Full Range Scanning

The single beam optics are compact and bench space saving. The long life Xenon lamp optics system in XB-10 ensures a quick and reliable performance, whereas Tungsten Halogen lamp used in VIS-20 also provides a stable measurement.

Color Touch Screen Operation

The intuitive color touch screen operation provides simple access to extensive range of function. The touch screen is sensitive to stylus or gloves on. Icon driven on board software improves accessibility and graphical display allows spectrum or standard curve show on screen. The forward and backward quick key allows user to proceed or return the process swiftly. An enlarged data display for photometry measurement makes result reading easier.

Various Measurement Modes

Operation mode includes photometric, multiple wavelength analysis, spectrum scanning, time scan, kinetics and direct concentration results.

Optional Accessories

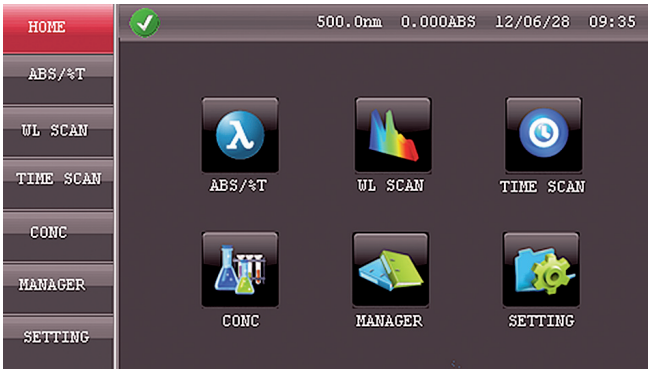
Varity choice of accessories included: test tube holder, flow cell with sipper, temperature control holder, long pathlength cuvette holder, multiple cell holder are available to enhance different application needs.

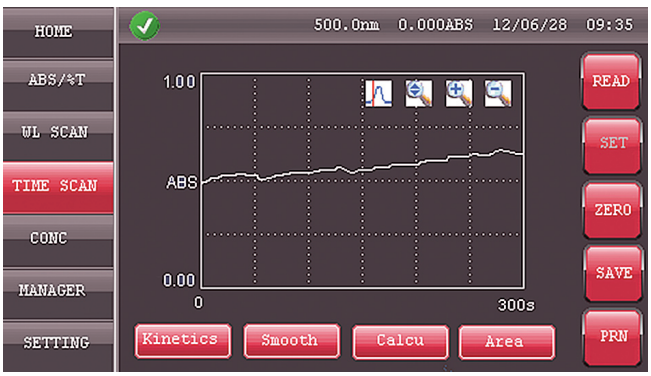
Storage and Data Output

External storage with SD card allows data export to PC compatible text or spreadsheet format. Method and result storage is almost unlimited by exchanging SD card when needed. Printer options are available for direct result printing with graphics. For advanced control, analyses and reporting can be performed by the optional UV Detective software installed on a computer .

Validation Function

To ensure optimum instrument performance, self diagnosis functions are equipped in GLP/GMP wizard for performance validation and auditing.





HALO XB-10 / VIS-20 SPECIFICATIONS	XB-10	VIS-20
Wavelength Range	190 to 1000nm	330 to 1000nm
Resolution	1nm	
Spectral Bandwidth	5nm	8nm
Transmittance accuracy	±1% T	
Transmittance repeatability	0.50%	
Noise	0.005A at 0A at 250nm	
Stray light	<0.5% at 220nm, 340nm, 360nm	
Wavelength accuracy	±2nm	
Wavelength repeatability	1nm	
Absorbance	-0.3 to 1.999	
Transmittance	0 to 199.9%	
Spectrum Scanning	Yes	
Concentration	-300 to 1999	
Selectable Resolution	1, 0.1, 0.01 or 0.001	
Memory	SD card storage	
Quantitation	-300 to 1999	
Time Scan Display	Graphical and calculated concentration value	
Wavelength scan analysis	Absorbance and wavelength of peaks and valleys	
GLP	Clock and calendar Self Diagnosis	

Halo XB-10 / VIS-20 Ordering Information

PRODUCT	CATALOG NUMBER#
Halo XB-10 UV-Visible Single Beam Spectrophotometer 100-230V, 50/60Hz	XB-10
Halo VIS-20 Visible Single Beam Spectrophotometer 100-230V, 50/60Hz	VIS-20
Test Tube Holder	XB-10-TTH
Micro cell holder	XB-10-MCH
Sample Sipper	XB-10-SS
Temperature Control Holder (20- 40˚C)	XB-10-TCH
Rectangular Long Pathlength Cuvette Holder	XB-10-RLPH
Manual 5 Cell Changer	XB-10-M5C
Automatic 5 Cell Changer	XB-10-A5C

VIS-10 economy choice for routine test purpose is also available.

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11/2012

Dynamica

The VELOCITY Range

BENCH TOP CENTRIFUGES

Designed in Australia.

REVOLUTION

REVOLUTION

The Dynamica Velocity range sets another benchmark in laboratory instrumentation. Dynamica's extensive manufacturing experience, commitment to innovation and continuous refinement, has resulted in an extensive range of precision laboratory instrumentation that fulfils the challenges of the contemporary and multifaceted laboratory environment. Versatilty, flexibility, performance, efficiency, design are hallmarks of Dynamica's dedication to excellence.

The Dynamica range of bench-top centrifuges are characterized by quality and safety and are complemented by a wide array of convenience features, from the user friendly control pad with clear, bright LED display to the dual interlocking door mechanism to name a few. An extensive model range with accompanying accessories extend suitability to many laboratory applications.

We test our electrical products against the CE and safety standard. Dynamica products are independently tested by accredited test house and this is reinforced by comprehensive technical and manufacturing data.

VELOCITY 18R

Refrigerated Benchtop Centrifuge

The Velocity 18R delivers high capacity, refrigerated centrifugation with an impressive maximum speed of 18,000 RPM (27,070 x g) (with the fixed angle FA18 rotor) and all from the convenience of the bench

Quick Set and forget Rotor System

Screwing or bolting rotors to the drive shaft is a thing of the past. Likewise lost spanners and rotor over tightening. With the Velocity 18R simply place the rotor on the drive shaft and that's all. The auto lock and secure mechanism performs the rest. Once centrifugation is complete simply lift the rotor off the drive shaft. Quicker, easier, more efficient and safer.

Auto rotor recognition

Automatic rotor recognition and confirmation once centrifugation has commenced, including rotational speed calculation and optimum temperature control.

Furthermore new rotors can be easily loaded onto the on-board database as they are introduced.

Fast Acceleration and Deceleration

The innovative high torque, drive technology effortlessly accelerates even the heaviest rotors to terminal velocity quickly and efficiently. Even the heaviest rotors with a full load will achieve maximum velocity within a few minutes. Furthermore, 9 pre-set acceleration and 10 pre-set deceleration profiles ensure the best separation even for the most delicate density gradients

High imbalance tolerances

Innovative motor engineering and mounting including a flexible drive shaft allow for greater imbalance tolerances, so much so that samples can be balanced simply with the naked eye. No more weighing just fill tubes or bottles to within 5mm of each other.

Powerful Refrigeration

A powerful non -CFC compressor cools the chamber quickly whilst maintaining the rotor at set temperature during centrifugation.

Furthermore, twin cooling fans - one each for the compressor and motor respectively - dissipate heat quickly to improve cooling efficiency and extend motor life.

Actual sample (rotor) temperature Measurement and Display

The temperature displayed on the LCD panel during centrifugation is that of the rotor (and hence samples) and not the temperature of the chamber nor the temperature at the sensor to allow for more precise, reproducible and efficient experimentation.

Safety is Paramount

The Velocity 18R offers many safety features in the unlikely event of an emergency such as:

Non-contact imbalance detection and shutdown based on the run profile for each rotor across its entire speed range rather than the inferior and conventional micro-switch detector.

- Guard barrier
- Dual lid electronic interlock
- Auto-hinge for improved sealing and door opening
- Over speed detection and shutdown
- Motor overheat detection and shutdown

User friendly operation and information rich display

Parameters are quickly and effortlessly inputted through the uncomplicated touch pad interface and displayed on the brightly backlit and easy to read LCD panel.

The LCD panel concurrently displays all experimentation parameters including diagnostic information as it occurs. Furthermore, once centrifugation has commenced, a real time graphic profile of the centrifugation status is displayed.

Quiet Operation

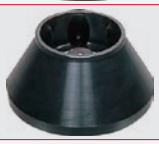
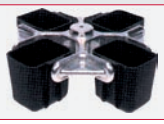
Noise abating insulation in the console including lower noise fans combine to reduce the audible operating noise to ≤58 dB.

Liquid Seeping Prevention

A single continuous rubber cap with strong gasket, firmly seals the motor chamber opening and drive shaft to prevent liquid from seeping into the motor and electronic components. As additional back-up, a highly absorbent sponge positioned beneath the rubber cap soaks up any liquid or condensation which then evaporates during operation.

Dynamica

VELOCITY 18R ROTORS

ROTOR TYPE	CAT. NO.#		MATERIAL	MAX SPEED (RPM)	MAX RCF (XG)	TUBE VOLUME (ML)
Fixed Angle	FA18B		Aluminium	18,000 " "	24,990 " "	1.5/2.0 0.5 0.2
Fixed Angle	FA15A		Aluminium	15,000 " "	21,500 " "	1.5 /2.0 0.5 0.2
Fixed Angle	FA15P		Plastic	15,000 " "	18,800 " "	1.5 /2.0 0.5 0.2
Fixed Angle	FA12A		Aluminium	12,000	14,100	0.2
Fixed Angle	FA18A		Aluminium	18,000	27,070	10
Fixed Angle	FA15B		Aluminium	15,000 " "	21,800 " "	50 15 15
Fixed Angle	FA15C		Aluminium	15,000 " "	23,300 " "	50 15 15
Fixed Angle	FA15D		Aluminium	15,000	20,900	80
Fixed Angle NEW	FA10B		Aluminium	10,000 "	11,400 "	50 15
Swing Bucket	SW5		Aluminium Bucket	4,800 4,800 4,800 4,800 3,000 3,000 4,800 4,800 4,800 4,800 4,800 4,800 4,800	4,170 4,170 4,170 4,170 1,630 1,630 4,170 4,170 4,170 4,170 4,170 3,990 4,170 4,170	250 5 7 10 10 15 15 15 15 50 50 50 50
Swing Bucket	SW5MP		Aluminium	4,800 " " "	3,120 " " "	96 Well Microplates 96 Deep Well Plates 1.5 /2.0 0.2
Swing Bucket	SW4A		Aluminium	4,000 4,000	2,900 2,860	15 50

PP- Polypropylene PA - Polyallomer PC - Polycarbonate * Plastic seal caps cannot be used with these adaptors

TUBE DESCRIPTION	TUBE DIMENSIONS(O X MM)	TUBE MATERIAL	CAPACITY	ADAPTOR	ROTOR AUTOCLAVABLE	ROTOR LID
Standard micro-tube	10.5 x 41	PP	18 x 1.5/2.0 ml	N/A	121°C	Aluminium
PCR single tube	8 x 32	PP	18 x 0.5 ml	FA15.05		
PCR single tube	6 x 24	PP	18 x 0.2 ml	FA15.02		
Standard micro-tube	10.5 x 41	PP	24 x 1.5/2.0 ml	N/A	121°C	Aluminium
PCR single tube	8 x 32	PP	24 x 0.5 ml	FA15.05		
PCR single tube	6 x 24	PP	24 x 0.2ml	FA15.02		
Standard micro-tube	10.5 x 41	PP	18 x 1.5/2.0 ml	N/A	No	N/A
PCR single tube	8 x 32	PP	18 x 0.5 ml	FA15.05		
PCR single tube	6 x 24	PP	18 x 0.2ml	FA15.02		
PCR single or strip	6 x 24	PP	48 x 0.2 ml	N/A	121°C	Aluminium
Round Bottom	16 x 81	PP	8 x 10 ml	N/A	121°C	Aluminium
Round Bottom	29 x 106	PP/PC	4 x 50 ml	N/A	121°C	Aluminium
Culture V Bottom	17 x 120	PP	4 x 15 ml	FA15.15C		
Round Bottom	16.5 x 113	PP	4 x 15 ml	FA15.15R		
Round Bottom	29 x 104	PC	6 x 50 ml	N/A	121°C	Aluminium
Culture V Bottom	17 x 120	PP	6 x 15 ml	FA15.15C		
Round Bottom	16.5 x 113	PP	6 x 15 ml	FA15.15R		
Round Bottom	38 x 106	PC	4 x 80 ml	N/A	121°C	Aluminium
Culture V Bottom	29 x 115	PP	6 x 50 ml	N/A	121°C	Aluminium
Culture V Bottom	17 x 120	PP	6 x 15 ml	FA10.15C		
Bottle	61.6 x 135	PP/PC	4 x 250ml	N/A		
Blood collection	12-13 x 75-78		28 x 5ml	SW5.5B	121°C	Plastic Caps
Blood collection	12-13 x 100		28 x 7ml	SW5.7B	(buckets)	with o-ring
Blood collection	16 x 100		28 x 10ml	SW5.10B		(Order Separately)
Round Bottom	12 x 105	Glass	28 x 10ml	SW5.10G		
Round Bottom	17 x 110	Glass	28 x 15ml	SW5.15G		
Round Bottom	16.5 x 113	PP	16 x 15ml	SW5.15P*		
Culture V Bottom	17 x 120	PP	12 x 15ml	SW5.15CA		
Culture V Bottom	17 x 120	PP	16x 15ml	SW5.15CB*		
Round Bottom	29 x 104	PP	4 x 50ml	SW5.50P		
Round Bottom	35 x 100	Glass	4 x 50ml	SW5.50G		
Culture V Bottom	29 x 115	PP	4x 50ml	SW5.50C		
Skirted bottom	29 x 115	PP	4x 50ml	SW5.50CB		
PCR / Culture	128W x 86L x 14H	PP/PC	2 x Plates	N/A	121°C	N/A
PCR / Culture	128W x 86L x 55H	PP/PC	2 x Plates	N/A	(buckets)	
Standard micro-tube	10.8 x 40.5	PP	48x 1.5/2.0 ml	SW5MP.15		
PCR single or strip		PP	192x 0.2 ml	SW5MP.02		
Culture V Bottom	17 x 120	PP	24 x 15ml	SW4A.15C	121°C	N/A
Culture V Bottom	29 x 115	PP	8 x 50ml	SW4A.50C	(buckets)	

VELOCITY 18R SPECIFICATIONS

MODEL	V18R
Maximum Speed	18,000 RPM (FA18A rotor)
Maximum RCF	27,070 x g (FA18A rotor)
Maximum Capacity	1,000 ml (4 x 250 ml)
Drive Mechanism	Brushless Induction
Control	Microprocessor based
Speed Range	300-18,000 RPM (100 RPM increments)
Speed Accuracy	±20 RPM
Speed / RCF Conversion	Yes
Timer	1 min - 99 Hrs 59 mins plus HOLD function
Display	Backlit LCD
Operating Noise	<58dB (A)
Temperature Range	-20°C to +40°C
Temperature Accuracy	±2°C
Memory	9 Programs
Acceleration/Deceleration	9 stages / 10 stages
Automatic Rotor Identification	Yes
Imbalance Detection	Yes
Dimensions (L x D x H)	730 x 610 x 380 mm
Weight (Net)	100 Kg
Power Supply	Single Phase AC220V, 50Hz, 10A AC220V, 60Hz AC110V, 60Hz

VELOCITY 14 / 14R
Benchtop Centrifuges

The Velocity 14 / 14R centrifuges set a new benchmark in versatility and compactness. The clever design results in a compact footprint yet generous capacity which not only frees up precious bench space but also provides the flexibility to alternate from micro-volume centrifugation to medium-volume centrifugation and all at an impressive maximum speed of 14,000 RPM / 20,290xg (with the FA15C rotor). Furthermore the V14R incorporates powerful and efficient refrigeration whilst the absence of refrigeration in the Velocity 14 further reduces its footprint by at least 50% compared to that of the Velocity 14R.

Smart, Compact, 3-in-1 Design

The versatile design of the Velocity 14 / 14R centrifuges offers the best of both worlds from the perspective of micro-volume and medium-volume centrifugation. The FA15A rotor is sufficiently fast and yet accommodating for up to 24 x 1.5/2 ml tubes with a terminal velocity of 14,000 RPM (18,726 x g) whilst the FA15C rotor has sufficient capacity for up to 6 x 50 ml tubes reaching an impressive terminal velocity of 14,000 RPM (20,290 x g) in V14R. The new SW4C Swing Bucket Rotor further expands the flexibility of the Velocity 14/14R centrifuges to incorporate a wide range of new applications.

Quick Set and forget Rotor System

Screwing or bolting rotors to the drive shaft is a thing of the past. Likewise lost spanners and rotor over tightening. With the Velocity 14 / 14R simply place the rotor on the drive shaft and that's all. The auto lock and secure mechanism performs the rest. Once centrifugation is complete simply lift the rotor off the drive shaft. Quicker ,easier, more efficient and safer.

Auto rotor recognition.

Microchip technology allows for automatic recognition of rotor and confirmation once centrifugation has commenced, including rotational speed calculation and optimum temperature control.

Furthermore new rotors can be easily loaded onto the on-board database as they are introduced.

Fast Acceleration and Deceleration.

The innovative high torque, drive technology effortlessly accelerates even the heaviest rotors to terminal velocity quickly and efficiently. Even the heaviest rotors with a full load will achieve maximum velocity within a few minutes. Furthermore, 9 pre-set acceleration and 9 pre-set deceleration profiles ensure the right conditions are set for the most precious of samples including density gradients.

High imbalance tolerances

Innovative motor engineering and mounting including a flexible drive shaft allow for greater imbalance tolerances, so much so that samples can be balanced simply with the naked eye. No more weighing, just fill tubes or bottles to within 5mm of each other.

Powerful Refrigeration (Velocity 14R model only)

A powerful non -CFC compressor cools the chamber quickly whilst maintaining the rotor at set temperature during centrifugation.

Furthermore, twin cooling fans - one each for the compressor and motor respectively - dissipate heat quickly to improve cooling efficiency and extend motor life.

Actual sample (rotor) temperature Measurement and Display (Velocity 14R only)

The temperature displayed on the LCD panel during centrifugation is that of the rotor (and hence samples) and not the temperature of the chamber nor the temperature at the sensor to allow for more precise, reproducible and efficient experimentation.

Safety is Paramount

The Velocity 14 / 14R offers many safety features in the unlikely event of an emergency such as:

Non-contact imbalance detection and shutdown based on the run profile for each rotor across its entire speed range rather than the inferior and conventional micro-switch detector.

Guard barrier

Dual lid electronic interlock

Auto-hinge for improved sealing and door opening

Over speed detection and shutdown

Motor overheat detection and shutdown

User friendly operation and information rich display

Parameters are quickly and effortlessly inputted through the uncomplicated touch pad interface and displayed on the brightly backlit and easy to read LCD panel.

The LCD panel concurrently displays all experimentation parameters including diagnostic information as it occurs. Furthermore, once centrifugation has commenced, a real time graphic profile of the centrifugation status is displayed.

Quiet Operation

Noise abating insulation in the console including lower noise fans combine to reduce the audible operating noise to ≤53 dB (≤58 dB for V14R).

Liquid Seeping Prevention

A single continuous rubber cap with strong gasket, firmly seals the motor chamber opening and drive shaft to prevent liquid from seeping into the motor and electronic components. As additional back-up, a highly absorbent sponge positioned beneath the rubber cap soaks up any liquid or condensation which then evaporates during operation.

VELOCITY 14R & 14 ROTORS

ROTOR TYPE	CAT. NO.#		MATERIAL	V14R (V14) MAX SPEED (RPM)	V14R (V14) MAX RCF (XG)	TUBE VOLUME (ML)
Fixed Angle	FA15A		Aluminium	14,000 (14,000) " "	18,728 (18,728) " "	1.5 /2.0 0.5 0.2
Fixed Angle	FA12A		Aluminium	12,000 (12,000)	12,290 (12,290)	0.2
Fixed Angle	FA18A		Aluminium	14,000 (14,000)	16,200 (16,200)	10
Fixed Angle	FA15B		Aluminium	14,000 (12,000) " "	18,990 (13,950) " "	50 15 15
Fixed Angle	FA15C		Aluminium	14,000 (12,000) " "	20,290 (14,900) " "	50 15 15
Fixed Angle* NEW	FA10E		Aluminium	10,000 (10,000) " "	10,600 (10,600) " "	50 15 15
Swing Bucket* NEW	SW4C		Aluminium	4,000 (4,000)	1,780 (1,780)	7

* Please enquire if use in your existing unit.

PP Polypropylene
PA Polyallomer
PC Polycarbonate

TUBE DESCRIPTION	TUBE DIMENSIONS(O X MM)	TUBE MATERIAL	CAPACITY	ADAPTOR	ROTOR AUTOCLAVABLE	ROTOR LID
Standard micro-tube PCR single tube PCR single tube	10.5 x 41 8 x 32 6 x 24	PP PP PP	24 x 1.5/2.0 ml 24 x 0.5 ml 24 x 0.2ml	N/A FA15A.05 FA15A.02	121°C	Aluminum
PCR single or strip	6 x 24	PP	48 x 0.2 ml	N/A	121°C	Aluminum
Round Bottom	16 x 81	PP	8 x 10 ml	N/A	121°C	Aluminum
Round Bottom Culture V Bottom Round Bottom	29 x 106 17 x 120 16.5 x 113	PP PP PP	4 x 50 ml 4 x 15 ml 4 x 15 ml	N/A FA15.15C FA15.15R	121°C	Aluminum
Round Bottom Culture V Bottom Round Bottom	29 x 106 17 x 120 16.5 x 113	PP PP PP	6 x 50 ml 6 x 15 ml 6 x 15 ml	N/A FA15.15C FA15.15R	121°C	Aluminium
Culture V Bottom Culture V Bottom Round Bottom	29 x 115 17 x 120 16.5 x 113	PP PP PP	4 x 50 ml 4 x 15 ml 4 x 15 ml	N/A FA10.15C N/A	121°C	Aluminium
Blood collection	12 x 81		4 x 5 ml	Included	121°C	Aluminium

VELOCITY 14R & 14 SPECIFICATIONS

MODEL	V14R	V14
Maximum Speed	14,000 RPM (FA15C rotor)	14,000 RPM (FA15A rotor)
Maximum RCF	20,290 x g (FA15C rotor)	18,728 x g (FA15A rotor)
Maximum Capacity	300 ml (6 x 50 ml)	
Drive Mechanism	Brushless Induction	
Control	Microprocessor based	
Speed Range	300-14,000 RPM (100 RPM increments)	
Speed Accuracy	±20 RPM	
Speed / RCF Conversion	Yes	
Timer	1 min - 99 Hrs 59 mins plus HOLD function	
Display	Backlit LCD	
Operating Noise	<58dB (A)	<53dB (A)
Temperature Range	-20°C to +40°C	-
Temperature Accuracy	±2°C	-
Acceleration/Deceleration	9 stages / 9 stages	
Automatic Rotor Identification	Yes	
Imbalance Detection	Yes	
Dimensions (L x D x H)	560 x 500 x 380 mm	340 x 490 x 380 mm
Weight (Net)	60 Kg	40 Kg
Power Supply	Single Phase AC220V, 50Hz, 10A AC220V, 60Hz AC110V, 60Hz	Single Phase AC220V, 50Hz/60Hz, 8A AC110V, 60Hz

VELOCITY 10R

Refrigerated Benchtop Centrifuge

The Velocity 10R takes the helm as Dynamica's highest capacity centrifuge –up to 3 litres with the SW3A rotor. Powerful refrigeration combined with an exceptional maximum speed of 10,000 RPM (12,740 x g with the FA10D rotor) offer the versatility and convenience to manage a wide range of larger scale applications and all in a footprint sufficiently compact to fit on a bench.

Auto rotor recognition

Microchip technology allows for automatic rotor recognition and confirmation once centrifugation has commenced, including rotational speed calculation and optimum temperature control.

Furthermore new rotors can be easily loaded onto the on-board database as they are introduced.

Fast Acceleration and Deceleration

The innovative, heavy duty, frequency conversion motor is purposely designed to handle the heaviest of rotors with abundant power output for smooth, quick and efficient acceleration to terminal velocity under fully laden conditions. Furthermore, 9 pre-set acceleration and 9 pre-set deceleration profiles ensure the right conditions are met for the most precious and vibration sensitive samples.

Powerful Refrigeration

A powerful non -CFC compressor cools the chamber quickly whilst maintaining the rotor at set temperature during centrifugation.

Furthermore, twin cooling fans - one each for the compressor and motor respectively - dissipate heat quickly to improve cooling efficiency and extend motor life.

Actual sample (rotor) temperature Measurement and Display

The temperature displayed on the LCD panel during centrifugation is that of the rotor (and hence samples) and neither the temperature of the chamber nor the temperature at the sensor. This allows for more precise, reproducible and efficient experimentation.

Safety is Paramount

The Velocity 10R offers many safety features in the unlikely event of an emergency such as:

Non-contact imbalance detection and shutdown based on the run profile for each rotor across its entire speed range rather than the inferior and conventional micro-switch detector.

Guard barrier

Dual lid electronic interlock

Auto-hinge for improved sealing and door opening

Over speed detection and shutdown

Motor overheat detection and shutdown

User friendly operation and information rich display

Parameters are quickly and effortlessly inputted through the ergonomic touch pad interface and displayed on the brightly backlit and easy to read LCD panel.

The LCD panel concurrently displays all experimentation parameters including diagnostic information as it occurs. Furthermore, once centrifugation has commenced, a real time graphic profile of the centrifugation status is displayed.

Quiet Operation

Noise abating insulation in the console including lower noise fans combine to reduce the audible operating noise to ≤62 dB - quite impressive for a large capacity, refrigerated centrifuge such as the Velocity 10R.

Liquid Seeping Prevention

A single continuous rubber cap with strong gasket, firmly seals the motor chamber opening and drive shaft to prevent liquid from seeping into the motor and electronic components. As additional back-up, a highly absorbent sponge positioned beneath the rubber cap soaks up any liquid or condensation which then evaporates during operation.

VELOCITY 10R ROTORS

ROTOR TYPE	CAT. NO.#		MATERIAL	MAX SPEED (RPM)	MAX RCF (XG)	TUBE VOLUME (ML)
Fixed Angle	FA8B		Aluminium	8,000 8,000 8,000	9,180 9,000 8,900	50 15 15
Fixed Angle	FA8C		Aluminium	8,000 8,000 8,000	9,560 9,200 9,350	50 15 15
Fixed Angle	FA10D		Aluminium	10,000 10,000 10,000	12,740 11,840 12,070	80 50 50
Swing Bucket	SW3A		Aluminium	3,200	2,500	750
Swing Bucket	SW4B		Aluminium	4,000 4,000 4,000 4,000 4,000 4,000 4,000 4,000	3,500 3,500 3,500 3,500 3,450 3,510 3,500 3,500	250 + 50 3 5 7 10 15 50 50

PP Polypropylene
PA Polyallomer
PC Polycarbonate
* Plastic seal caps cannot be used with these adaptors

TUBE DESCRIPTION	TUBE DIMENSIONS(O X MM)	TUBE MATERIAL	CAPACITY	ADAPTOR	ROTOR AUTOCLAVABLE	ROTOR LID
Culture V Bottom	29 x 115	PP	10 x 50 ml	N/A	121°C	Aluminum
Culture V Bottom	17 x 120	PP	10 x 15 ml	FA8B.15C		
Round Bottom	16.5 x 113	PP	10 x 15ml	FA8B.15P		
Round Bottom	29 x 106	PP	12 x 50 ml	-	121°C	Aluminum
Culture V Bottom	17 x 120	PP	12 x 15 ml	FA8C.15C		
Round Bottom	16.5 x 113	PP	12 x 15 ml	FA8C.15P		
Round Bottom	38 x 106	PP	6 x 80 ml	-	121°C	Aluminum
Culture V Bottom	29 x 115	PP	6 x 50 ml	FA10D.50C		
Round Bottom	29 x 106	PP	6 x 50 ml	FA10D.50P		
Bottle	97 x 157	PP/PC	4 x 750 ml	N/A	121°C (buckets)	N/A
Bottle + Culture V Bottom	61.6 x 135 & 30 x 116	PP/PC	2 x 250 ml + 2 x 50 ml	SW4B.250P	121°C (buckets)	Plactic Caps with o-ring (Order Separately)
Blood Collection	12 x 81		120 x 3 ml	SW4B.3B		
Blood Collection	12.5 x 106		120 x 5 ml	SW4B.5B		
Blood Collection	12.5 x 106		120 x 7 ml	SW4B.5B		
Blood Collection	12.5 x 106		120 x 10 ml	SW4B.10B		
Culture V Bottom	17 x 120	PP	64 x 15 ml	SW4B.15C		
Culture V Bottom	29 x 115	PP	20 x 50 ml	SW4B.50CB		
Culture V Bottom	29 x 115	PP	32 x 50 ml	SW4B.50CA*		

VELOCITY 10R SPECIFICATIONS

MODEL	V10R
Maximum speed	10,000 RPM (FA10D)
Maximum RCF	12,740 x g (FA10D rotor)
Maximum capacity	3,000 ml (4 x 750ml)
Drive Mechanism	Frequency conversion motor
Control	Microprocessor based
Speed Range	300- 10,000 RPM (100 RPM increments)
Speed Accuracy	±20 RPM
Speed/ RCF conversion	Yes
Timer	1 min- 99 Hrs 59 mins plus HOLD function
Display	Backlit LCD
Operating Noise	≤62 dB (A)
Temperature range	-20˚C to 40˚C
Temperature accuracy	±2˚C
Memory	9 programs
Acceleration	9 stages / 9 stages
Automatic Rotor Identification	Yes
Imbalance Detection	Yes
Dimensions (L x D x H)	876 x 695 x 460 mm
Weight (Net)	160 Kg
Power requirements	Single phase 220V, 50Hz, 15A 110V, 60Hz

ORDERING INFORMATION

PRODUCT		Cat. No.#	Components
Velocity 18R Refrigerated Centrifuge	(220V, 50Hz) (220V, 60Hz) (110V, 60Hz)	V18R-2 V18R-2A V18R-1	Main Unit Spanner set and nuts Spare Fuses Spirit Level Silicon Grease Rotor rest pad Instruction Manual
Velocity 14R Refrigerated Centrifuge	(220V, 50Hz) (220V, 60Hz) (110V, 60Hz)	V14R-2 V14R-2A V14R-1	Main Unit Spanner set and nuts Spare Fuses Spirit Level Silicon Grease Rotor rest pad Instruction Manual
Velocity 14 Centrifuge	(220V, 50/60Hz) (110V, 60Hz)	V14-2 V14-1	Main Unit Spanner set and nuts Spare Fuses Spirit Level Silicon Grease Rotor rest pad Instruction Manual
Velocity 10R Refrigerated Centrifuge	(220V, 50Hz) (110V, 60Hz)	V10R-2 V10R-1	Main Unit Spanner set and nuts Spare Fuses Spirit Level Silicon Grease Rotor rest pad Instruction Manual
FA18A Fixed angle aluminium rotor		FA18A	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
FA18B Fixed angle aluminium rotor		FA18B	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
adaptors for 0.2 ml PCR tubes / strips adaptors for 0.5 ml PCR tubes		FA15.02 FA15.02	24 x adaptors 24 x adaptors
FA15A Fixed angle aluminium rotor		FA15A	Velocity Rotor Aluminium Biosafety lid Spare rubber o-rings Lubricant Manual
Adaptors for 0.2 ml PCR tubes / strips Adaptors for 0.5 ml PCR tubes		FA15.02 FA15.05	24 x adaptors 24 x adaptors
FA15P Fixed angle aluminium rotor		FA15P	Rotor Lubricant Manual
Adaptors for 0.2 ml PCR tubes / strips Adaptors for 0.5 ml PCR tubes		FA15.02 FA15.05	24 x adaptors 24 x adaptors

PRODUCT	Cat. No.#	Components
FA15B Fixed Angle Aluminium Rotor	FA15B	Rotor Lubricant Aluminium Biosafety lid Spare rubber o-rings Manual
Adaptors for 15 ml round bottom tubes	FA15.15R	4 x adaptors
Adaptors for 15 ml Culture tubes	FA15.15C	4 x adaptors
FA15C Fixed Angle Aluminium Rotor	FA15C	Rotor Lubricant Aluminium Biosafety lid Spare rubber o-rings
Adaptors for 15 ml round bottom tubes	FA15.15R	4 x adaptors
Adaptors for 15 ml Culture tubes	FA15.15C	4 x adaptors
FA15D Fixed Angle Aluminium Rotor	FA15D	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
FA12A Fixed Angle Aluminium Rotor	FA12A	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
FA10B Fixed Angle Aluminium Rotor	FA10B	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
Adaptors for 15 ml Culture tubes	FA10.15C	6 x adaptors
FA10D Fixed Angle Aluminium Rotor	FA10D	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
Adaptors for 50 ml Culture tubes	FA10D.50C	6 x adaptors
Adaptors for 50 ml round bottom tubes	FA10D.50P	6 x adaptors
FA10E Fixed Angle Aluminium Rotor	FA10E	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
Adaptors for 15 ml Culture tubes	FA10.15C	4 x adaptors
FA8B Fixed Angle Aluminium Rotor	FA8B	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
Adaptors for 15 ml Culture tubes	FA8B.15C	10 x adaptors
Adaptors for 15 ml round bottom tubes	FA8B.15P	10 x adaptors
FA8C Fixed Angle Aluminium Rotor	FA8C	Rotor Lubricant Aluminium lid Spare rubber o-rings Manual
adaptors for 15 ml Culture tubes	FA8C.15C	12 x adaptors
Adaptors for 15 ml round bottom tubes	FA8C.15P	12 x adaptors

PRODUCT	Cat. No.#	Components
SW5 Swing Bucket Aluminium Rotor	SW5	Rotor 4 x Aluminium Round Buckets Lubricant Manual
Adaptors for 5 ml blood collection tubes	SW5.5B	4 x adaptors
Adaptors for 7 ml blood collection tubes	SW5.7B	4 x adaptors
Adaptors for 10 ml blood collection tubes	SW5.10B	4 x adaptors
Adaptors for 10 ml round bottom glass tubes	SW5.10G	4 x adaptors
Adaptors for 15 ml round bottom glass tubes	SW5.15G	4 x adaptors
Adaptors for 15 ml round bottom PP tubes	SW5.15P*	4 x adaptors
Adaptors for 15 ml culture tubes	SW5.15CA	4 x adaptors
Adaptors for 15 ml culture tubes	SW5.15CB*	4 x adaptors
Adaptors for 50 ml round bottom glass tubes	SW5.50G	4 x adaptors
Adaptors for 50 ml round bottom PP tubes	SW5.50P	4 x adaptors
Adaptors for 50 ml culture tubes	SW5.50C	4 x adaptors
Adaptors for 50 ml skirted bottom culture tubes	SW5.50CB	4 x adaptors
Plastic Seal Caps	SW5.SC	4 x clear caps with rubber o-rings
* not suitable with plastic caps		
SW5MP Swing Bucket Aluminium Rotor	SW5MP	Rotor 2 x Aluminium Rectangular Buckets Lubricant Manual
Adaptors for 1.5 ml micro tubes	SW5MP.15	2 x adaptors
Adaptors for 0.2 ml PCR tubes	SW5MP.02	2 x adaptors
SW4A Swing Bucket Aluminium Rotor	SW4A	Rotor Lubricant 4 x Aluminium Rectangular Buckets Manual
Adaptors for 15 ml culture tubes	SW4A.15C	4 x adaptors
Adaptors for 50 ml culture tubes	SW4A.50C	4 x adaptors
SW4B Swing Bucket Aluminium Rotor	SW4B	Rotor Lubricant 4 x Aluminium Rectangular Buckets Spare rubber o-rings Manual Rotor lock screw 4 x Shield caps
Adaptors for 250 ml bottles plus 50 ml culture tubes	SW4B.250P	4 x adaptors
Adaptors for 3 ml blood collection tubes	SW4B.3B	4 x adaptors
Adaptors for 5 ml blood collection tubes	SW4B.5B	4 x adaptors
Adaptors for 7 ml blood collection tubes	SW4B.5B	4 x adaptors
Adaptors for 10 ml blood collection tubes	SW4B.10B	4 x adaptors
Adaptors for 15 ml culture tubes	SW4B.15C	4 x adaptors
Adaptors for 50 ml culture tubes	SW4B.50CB	4 x adaptors
Adaptors for 50 ml culture tubes	SW4B.50CA*	4 x adaptors
*not suitable with plastic caps		
SW4C Swing Bucket Aluminium Rotor	SW4C	Rotor 4 x Aluminium Rectangular Buckets Lubricant Manual 4 x adaptors
SW3A Swing Bucket Aluminium Rotor	SW3A	Rotor 4 x Aluminium Round Buckets Lubricant Manual

6µ Micro Fuge

- Microtubes Rotor and Tube-strips Rotor Exchangeable
- Spins 8 Microtubes 1.5 - 2.2 ml and 2 x 8 well Tube-strips
- Rotors can be installed in a single motion without tools
- Compact personal centrifuge fits comfortably in the workspace
- User-friendly advanced design
- Long lasting and high quality

TECHNICAL SPECIFICATIONS	
Rotor	Microtubes Rotor MA-1 Tube-stripes Rotor PA-1
Maximum Speed	6,000 RPM (+/-20%) 6,200 RPM (+/-20%)
Maximum RCF	2,910 x g 2,690 x g
Maximum Volume	1.5 (2.2) ml x 8 Tubes 0.2 ml x 8 tubes connected x 2 lines
Power Required	AC 230V, 1A, 50/60 Hz (CE Marked)
Fuse	250V, 0.5A
Dimensions (W x D x H) mm	155 x 175 x 125
Speed Control	Automatic / Constant Speed
Drive System	Direct Drive / Vibration Insulated
Brake	Dynamic Braking
Acceleration Time	Within 5 seconds up to 90% of rated speed
Deceleration Time	Within 15 seconds (Lid Closed) Withini 3 seconds (Lid Open)

13µ Mini Fuge

- Compact design to minimize bench space used
- Rapid acceleration (<12 sec) and deceleration (<16 sec)
- Simple display with mono LCD
- Safe operation with lid-lock function
- Autoclavable rotor
- Corrosion resistant rotor
- Two rotors available 12 x 1.5 / 2 ml Tubes (Standard) & 32 x 0.2 ml Tubes or Strips (option)

TECHNICAL SPECIFICATIONS	
Maximum RPM	13,500 RPM
Maximum RCF	12,300 x g
Maximum Capacity	1.5 ml / 2.0 ml x 12
Run Time	≤ 30 min
Noise Level	≤ 60 dB
Acceleration Time	≤ 12 seconds
Deceleration Time	≤ 16 seconds
Safety	Lid-lock
Available Rotors	1.5 ml x 12 0.2 ml x 32 PCR Strips
Power & Frequency	220V, 50/60 Hz
Dimensions (W x D x H) mm	208 x 245 x 145
Weight	4.4 kg

Dynamica

The VELOCITY Range

BENCH TOP CENTRIFUGES

Designed in Australia.

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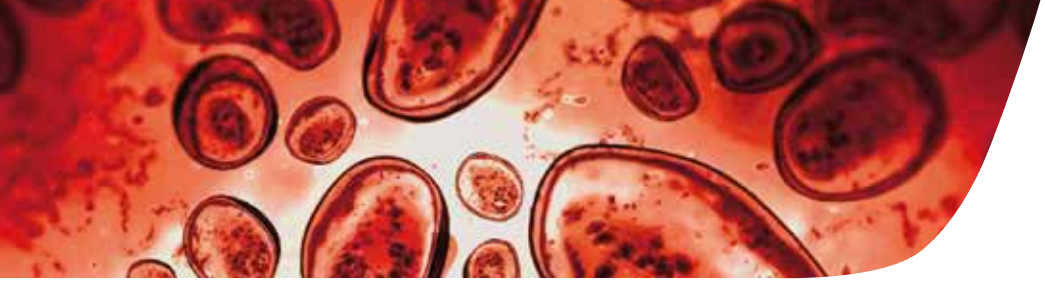
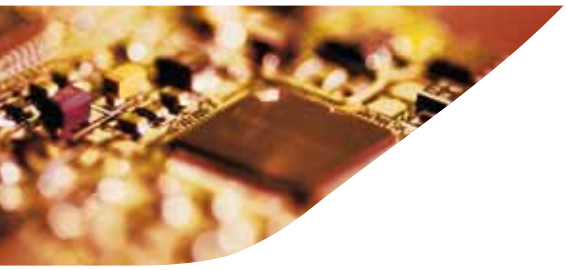
12/2011

HORNOS

Dynamica





HORNOS

FROILABO ofrece un amplio rango de hornos, que cumplen con un 95% de las aplicaciones de laboratorio. Los hornos son utilizados para el secado, calentamiento, pruebas de resistencia y otras pruebas térmicas que requieren alta precisión. La estandarización de componentes y variaciones de la fuente de poder ofrece un excelente precio sin comprometer la calidad, seguridad y precisión.

El rango de hornos de **FROILABO** tiene un ventilador que aparte de disminuir el tiempo de calentamiento ofrece homogeneidad en toda la cámara aunque esté llena. Las paredes internas de acero inoxidable son delegadas y fáciles de limpiar. Los labios de la puerta reducen el calor por conducción. El uso de la tecnología "Fuzzy" ajusta el control de calentamiento para conocer los requerimientos actuales en cualquier momento.

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AP

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RANGO PERFORMANCE (AP)

- Rango de temperatura: ambiente + 10°C a +250°C (50°F a 482°F)
- Ventilador que proporciona estabilidad y homogeneidad en la cámara (<1°F a 158°F)
- Volumenes desde 60 hasta 240 Litros
- Sonda de PT 100 ohm
- Regulador lógico PID
- Timer : 99h 59min
- Cámara por convección, sin riesgo de conducción o radiación (entrada de aire en el punto de ajuste de temperatura)
- Display dual digital, muestra la temperatura real y la programada (0.1°C precisión)
- Panel de control simplificado
- Entrada de aire ajustable (desde 0 hasta 100%)
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- «Libre de manos» diseño de fácil cierre de puerta
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- Cumple con **EN60068-3-11**
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- Certificado individual de control de calidad
- **24 meses de garantía**

Para ordenar

220-230V / 50Hz	60L	120L	240L
«AIR PERFORMANCE», puerta plana	AP60	AP120	AP240
«AIR PERFORMANCE», puerta de vidrio	AP60PV	AP120PV	AP240PV

110V y 50-60Hz versiones disponibles

AE

Basado en el rango PERFORMANCE, funciones adicionales permiten al usuario optimizar las aplicaciones y el control de hornos.

RANGO EXPERT (AE)

A las especificaciones generales, las siguientes características han sido agregadas:

- Ventilador de velocidad ajustable (25 al 100%)
- Alarma audible
- Puerto de entrada de para validación y calibración del horno
- Control programable con 16 parámetros, capaces de aguantar 8 temperaturas y 3 ciclos diferentes
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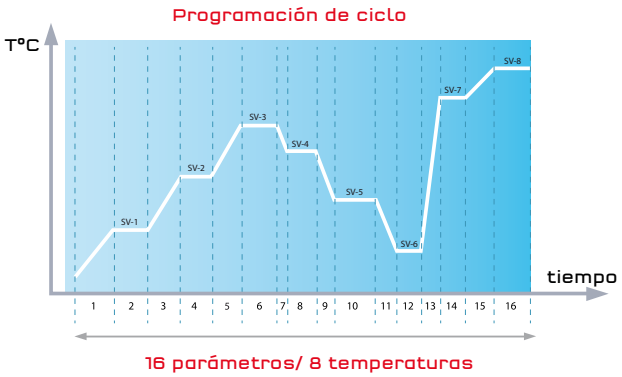

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ESPECIFICACIONES PERFORMANCE/EXPERT		Hornos de convección		
		AP/AE60	AP/AE120	AP/AE240
Rango de temperatura		Amb +10°C a 250°C		
Uniformidad de temperatura +/- (°C)*	a 70°C	0,7	0,6	0,7
	a 150°C	1,5	1,4	1,5
	a 250°C	5	5	5
Estabilidad de temperatura (°C)		0.2	0.2	0.2
Tiempo para elevación de temperatura (min)**	a 70°C	8	9	10
	a 150°C	20	30	24
	a 250°C	38	50	45
Tiempo de recuperación después de apertura de puerta de 30 seg (min)**	a 70°C	1,5	2	2
	a 150°C	2,5	3	3,5
	a 250°C	3,5	4	4,5

ESPECIFICACIONES ELECTRICAS			
Clasificación IP	Panel frontal IP55		
Fuente de poder	220-230V 50/60Hz 10A		
Poder (W)	1000	1000	2000

DIMENSIONES EXTERNAS			
Largo (mm)	526	626	626
Alto (mm)	640	750	1230
Profundidad (mm)	579,5	679,5	679,5
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DIMENSIONES INTERNAS			
Volumen actual (l)	58	118	230
Largo (mm)	400	500	500
Alto (mm)	390	500	980
Profundidad (mm)	370	470	470
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** 98% del valor
Probados a temperatura ambiente de 25°C y variación de voltaje de +/- 10%

OPCIONES

Pt 100 Ohm para recolección de datos
Grabador de disco
Registro eléctrico
Seguro de puerta
Caracterización de 9 puntos de acuerdo a EN60068-3-11
Estantes de acero inoxidable perforado

ACCESSORIOS

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Soporte con o sin ruedas

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Dynamica

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DISTRIBUIDOR:

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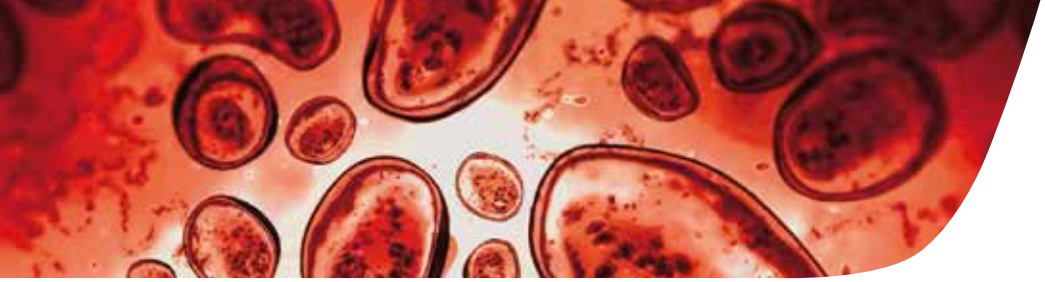
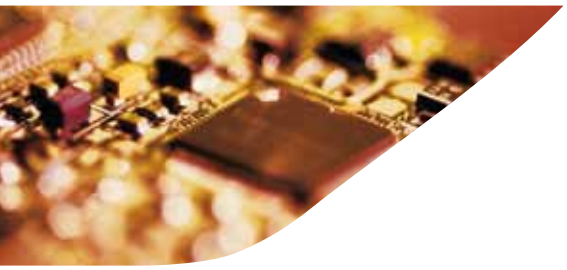
HORNOS

Dynamica





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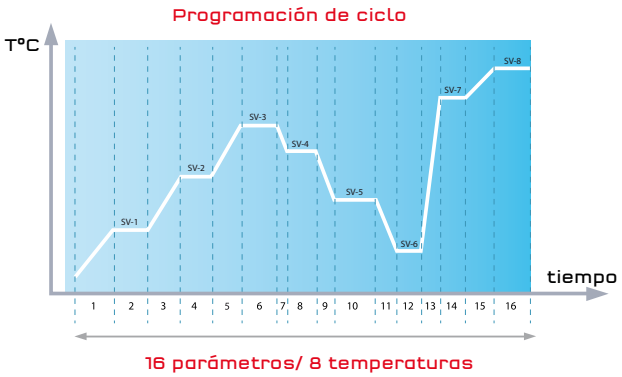

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Dynamica

GelView Master

Gel Documetation System

Gel in Touch

iPad or Android tablet

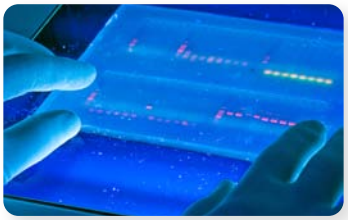
PC

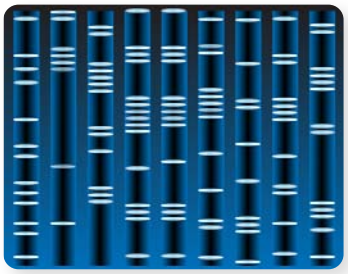
Wi-Fi connection for wire-free lab environment

- Easy to use with quick imaging capture
- Intuitive imager software with USB connection to PC
- Multi-image file saving selection: BMP, TIFF, JPEG and PNG
- Built-in, 21 x 26 cm pullout UV transilluminator for ease of use and gel cutting
- Blue light technology for operation and environment safe lab experiment
- Pre-focused camera lens, no adjustment needed
- Optional blue LED or white light table available, easy installation
- Ready to use right out of the box
- Imager analysis software included

GelView Master
Gel Documetation System

GelView Master (standard version)





GelView Master Wi-Fi (Wi-Fi version)

GelView Master Imager Systemt Specification

Model	GelView Master (standard version)	GelView Master Wi-Fi (Wi-Fi version)
Camera / Lens	5.0 MP scientific grade camera	5.0 MP scientific grade camera
Max. Aperture	f/1.2	f/1.2
Built-in UV transilluminator	Yes, 312 nm (optional white or blue light available)	Yes, 312 nm (optional white or blue light available)
Image Storage	PC only	PC / iPad / Android tablet
Safety Device	Safety door switch	Safety door switch
Features	USB connects to a PC Image Capture software included Connect to PC; PC required	Wifi to PC / iPad / Android tablet Image Capture software included Connect to PC / iPad / Android tablet PC / iPad / Android tablet required

GelView Master Ordering Information

PRODUCT	CATALOG NUMBER#
GelView Master Imaging System, standard version	GD-GVMS
GelView Master Imaging System, standard version, UV high performance	GD-GVMS-UV
GelView Master Wi-Fi Imaging System, wifi version with PC/iPad/Android tablet compatibility	GD-GVMW
GelView Master Wi-Fi Imaging System, wifi version with PC/iPad/Android tablet compatibility, UV high performance	GD-GVMW-UV

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F: +61 3 9548 7177
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P: +852 3583 1581
F: +852 3583 1580
Email: info@dynamica-asia.com
Web: www.dynamica-eu.com

Dynamica

The HALO Range

DNAmaster

MICROVOLUME NUCLEIC ACID AND PROTEIN ANALYSER

REVOLUTION

REVOLUTION

The Dynamica DNAmaster sets another benchmark in laboratory instrumentation. Dynamica's extensive manufacturing experience, commitment to innovation and continuous refinement, has resulted in an extensive range of precision laboratory instrumentation that fulfils the challenges of the contemporary and multifaceted laboratory environment. Versatilty, Flexibility, Performance, efficiency, design are hallmarks of Dynamica's dedication to excellence.

Halo DNAmaster

Microvolume Measurement and Analysis for Nucleic Acids, Proteins and Bacterial Cell Culture

The Halo DNAmaster complements the existing range of Halo spectrophotometers and plate readers. It is designed for the measurement and analysis of precious samples by requiring only microvolume quantities. Naturally, DNAmaster features the same ruggedness, reliability, precision and reproducibility synonymous with the Halo family.
The Halo DNAmaster is equipped with a comprehensive selection of on-board functions for versatility and suitability to many life science applications involving nucleic acid, proteins and bacterial cultures.

Spectral Features

The Halo DNAmaster boasts a wavelength range from 200 to 900nm, an absorbance range between 0 - 4 O.D. and a wavelength accuracy of 1nm. Low noise (~0.005 O.D.) combined with a photometric accuracy of ±0.01 O.D. and 4nm bandwidth ensure excellent sensitivity, accuracy and reproducibility.

Minimal Volume for Precious Samples

By virtue of the innovative 'Ultramicro' cell as little as 0.5µl of sample is required. Simply pipette the sample on the appropriate section of the Ultramicro cell, perform the measurement and then wipe off clean or aspirate the sample for further downstream applications.
The Halo DNAmaster can also be used as a conventional spectrophotometer with standard 10mm optical path length cuvettes.

If microvolume measurements are not a must, the Halo DNAmaster is also available configured with 50ul cells. However, both configurations can also be used as a conventional spectrophotometer with standard 10mm optical path length cuvettes.

User Friendly Operation and Information Rich LCD Display

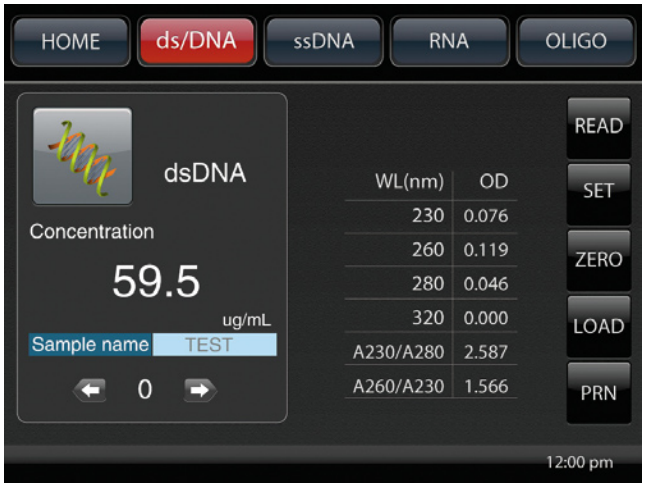
The 90mm x 120 mm, colour LCD screen is touch sensitive with intuitively designed software for quick selection by sample type. Effortless step by step navigation and a virtual QWERTY keyboard provide fast and efficient input and analysis. Data is displayed numerically and also in a graphical format (where applicable) with the further option of direct printing or storage in a SD card.

Nucleic Acid Analysis

The Halo DNAmaster is configured with onboard functions for the quantification of nucleic acids. Select the nucleic acid of choice such as double stranded DNA, single stranded DNA, RNA or oligonucleotides and absorbance measurements at the prescribed wavelength are directly converted into concentration units. The detection limit of the Halo DNAmaster is 20ng/µl (double stranded DNA).

The purity of nucleic acids can also be determined from ratio calculations such as A260 / A280 nm for protein contamination of DNA preparations.

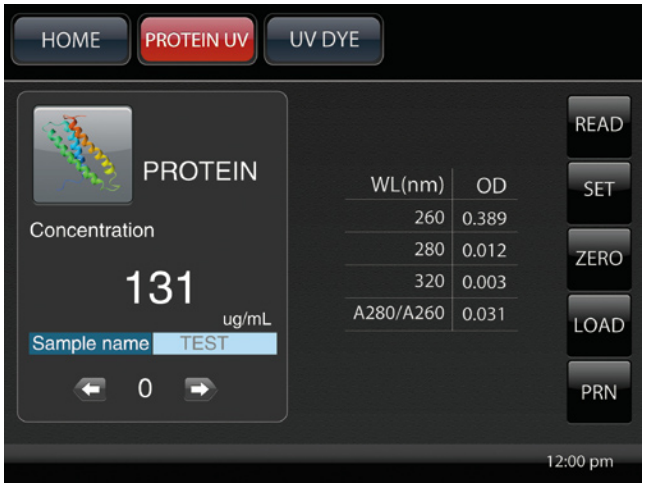
Furthermore, The Halo DNAmaster can measure concentrations DNA, RNA and oligonucloetide – dye complexes.



Protein Analysis

The Halo DNAmaster measures protein concentrations from a range of colourimetric assays such as Bradford, Lowry, Biuret and BCA. In addition to numerical data the standard calibration curve can be displayed.

Furthermore measure protein alone at 280nm or protein-dye complexes that absorb at 246nm.



Cell Culture Optical Density

The Halo DNAmaster also measures bacterial cell density at 600nm. Absorbance readings of approximately 0.4units define a bacterial culture in exponential growth phase and at the most appropriate for harvest or induction.

Conventional Spectrophotometry

At the touch of the screen the Halo DNAmaster converts into a conventional spectrophotometer for use with either the Ultramicro cell or a standard 10mm optical path length quartz or glass cuvette. Perform single wavelength photometry in either absorbance or % transmittance mode including multiple wavelength photometry for up to 6 user defined wavelengths in absorbance mode.

Other functions include wavelength scans, time scans for kinetic studies and concentration calculations from standard curves.

Validation Functions

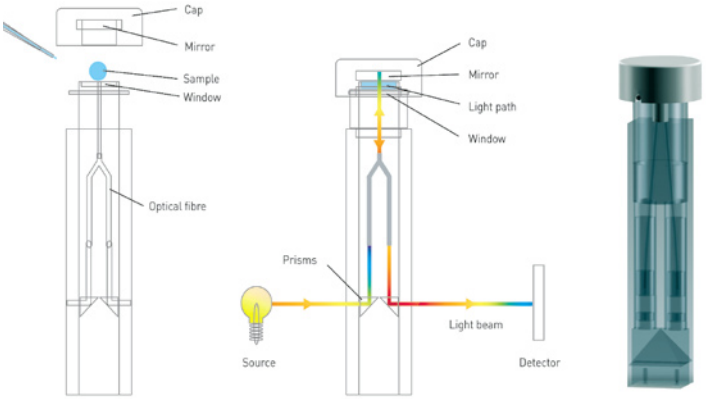
To ensure optimum instrument performance, a self-diagnostic function incorporating a number of parameters is executed each time the Halo DNAmaster is switched on including a selectable GLP/GMP function.
(Validation kit is required in some parameter.)

Thoughtful Design

Dynamica considered every detail in the design of Halo DNAmaster, for example, the cuvette holder can be removed for washing and it is autoclavable for decontamination. Furthermore a cover protects the cuvette holder and detector from dust and dirt when the unit is not in use. The side mounted cuvette rack is detachable for easy cleaning and a smaller footprint if bench space is at a premium.

Ultramicro Cell

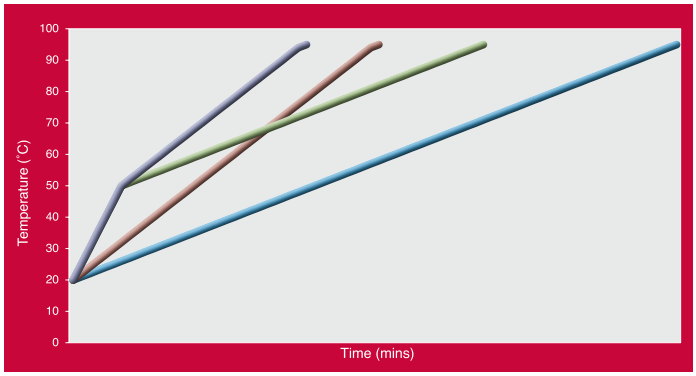
The Ultramicro cell utilises fibre-optic technology and is designed for measurement and analysis of extremely small volumes of DNA/RNA samples with high accuracy and outstanding reproducibility. In applications involving very high or very low DNA concentrations, a single light path is often insufficient, however the interchangeable cap of the Ultramicro cell imparts light paths of 1 mm and 0.2 mm respectively and effectively creates virtual dilutions to overcome such situations. A further function of the cap is to prevent the sample from drying up and to ensure that measurements remain reproducible since sample characteristics can be affected by evaporation of the solvent.



Programmable Temperature Control Model

The DNAmaster temperature control model utilizes a peltier regulated cell holder to control the sample temperature from a range of +20˚C to +95˚C (with ±0.5˚C precision). Predominantly designed for the determination of nucleic acid Tm (at 260nm) up to 4 heating profiles can be selected, including 1˚C/min, 2˚C/min or a quick heat mode for heating up to a plateau temperature of 50˚C at 5˚C/min before ramping commences at 1˚C/min or 2˚C/min.

The heated cell holder can also be used in other applications requiring incubation and/or keeping a sample at a constant temperature for example during kinetic analyses.



DNAmaster SPECIFICATIONS	
Lamp Source	Long life Xenon Flash Lamp
Detector Device	CCD
Wavelength Range	200-900nm
Measuring Range	0-4.0 OD
Wavelength Accuracy	+/-1nm
Slit Width	4nm
Noise	~0.005 OD (RMS)
Drift	~0.005 OD
Photometric Accuracy	+/-0.01 OD
Photometric Repeatability	+/-0.005 OD
Stray Light	0.5%T
DNA Detection Limit	20ng/ul
Minimum Sample Volume with Ultramicro Cuvette	0.5ul
Start Up Melodies	Selectable from 7 types and mute
Energy Save Mode	Yes
Memory Storage	Internal or SD card
Power Requirement	110 - 200V, 50/60Hz

Halo DNAmaster Ordering Information

PRODUCT	CATALOG NUMBER#
Halo DNAmaster 200nm-900nm with 50µl microvolume cell	DNAM
Halo DNAmaster 200nm-900nm with ultravolume cell	DNAM-UM
Halo DNAmaster 200nm-900nm temperature control model	DNAM-TC
Compact thermal printer for DNAmaster	DNAM-PRINT

Dynamica

The HALO Range

DNAmaster

MICROVOLUME NUCLEIC ACID AND PROTEIN ANALYSER

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05/2012

Dynamica

MICROPLATE READER

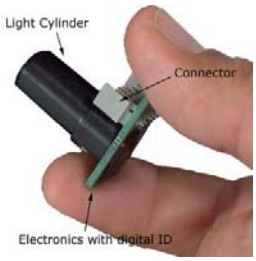
- LED Technology
- Low power consumption
- Automatic wavelength detection
- Intelligent LED-plugins
- No more lamp replacements
- UV ready (340nm) anytime

HALO LED 96

HALO LED 96

350-8703-000b1

- LED technology
- Unrivaled optical performance
- intelligent LED-plugins
- UV ready (340nm)
- Easy and safe operation
- Computer controlled
- MikroWin2000 compliant



HALO LED 96 is a computer controlled microplate reader for 96 well plates. Easy and safe operation take away the hassle from your daily microplate reading jobs. It is based on the most modern LED technology, no need to worry about lamp replacements anymore.

LED Technology: Instead of lamps and filters, HALO LED 96 is fitted with up to 6 intelligent, wavelength specific LED-plugins (patent pending). Each plugin contains it's own digital ID, LED-light source, filter and lenses in one easily exchangeable component.

Low power consumption: In times like these, low power consumption must be a key issue with any electrical devices. With a maximum consumption of 12W during reading and a stand-by consumption of not more than 2W, HALO LED 96 again is setting new standards.

Unrivaled optical performance: Using LED's as light source moves all those known problems with halogen lamps used in other readers to history. Modern LED's are known for their high and extremely stable light energy paired with very low energy consumption at no heat development.

Intelligent LED Plugins: Adding new wavelengths (e.g. 340nm) or exchanging existing ones is as easy and safe as 1-2-3. Auto-recognition of the individual plugins takes away the worry about filter positions in the reader.

Computer Controlled: HALO LED 96 is fully computer controlled. Capture 96 (included) allows to read plates and collect the raw OD data from the reader. With it's clipboard function, it allows to paste raw data into any spreadsheet program for further calculations.

MikroWin2010 compliant: In combination with MikroWin2010 data reduction software (optional), HALO LED 96 adapts itself to any of your requirements for microplate based assays. Depending on your package selection, MikroWin2010 is the best choice for routine applications as well as extended screening, curvefit and kinetic studies.

All these great features combined in one product make our HALO LED 96 the next generation microplate reader of your choice!

Parameter	Value
Plate Types	96 well
Optical system	8 channel Transmission Photometer
Light source	Digital controlled LED lamps, wavelength specific
Photodetector	8 silicon Photodiodes
Wavelength range	340 - 750nm (special wavelengths up to 900nm)
Resolution	0.1 mOD (0.0001 OD)
Indication range	0.000 - 4.000 OD (Abs)
Accuracy	better than ± 1% and ± 0.005 OD up to 2.5 OD (any wavelength)
Linearity	≤ ±0.5% and ± 0.005 OD from 0.1 to 1.5 OD (any wavelength) ≤ ±0.75% from 1.5 to 2.5 OD (400nm – 750nm) ≤ ±0.75% and ± 0.005 OD from 0.1 to 2 OD (340 - 400 nm)
Reproducibility	better than ≤ ±0.3% at 1OD (any wavelength) better than ≤ ±0.5% at 2OD (400-750nm)
Measurement Mode	Single and dual wavelength Linear scan (30 points/well) for agglutination etc.
Reading speed	5 seconds (kinetic interval, single wavelength) 10 seconds (96 well, dual wavelength)
Wavelengths	4 wavelengths onboard (405, 450, 492, 620nm) up to 6 possible (340 - 750)
Shaking	4 speeds
PC-Interface	USB 2.0 (USB 1.1 compatible)
PC Software	Capture96 included MikroWin2010 demo version included
Dimensions	23cm x 12cm x 36cm (W x H x L)
Weight	6.7 kg net
Housing	Anodized Aluminium
Power Supply	external power adapter 100-240V, 50 or 60 Hz (autosensing), 24VDC, 2.5A (approved to EN 60601-1-2, EN 61000-6-3, EN 61000-6-1, EN 60601-1, EN 60950)
Scope of Supply	Power adapter, USB Cable, 4 Standard Filters, User manual (CD), Capture96 Control Software, MikroWin2010 Connect (demo version)
Ordering information	WR-302-02 HALO LED 96 Microplate Reader WR-302-xxx LED plugin (xxx = wavalength in nm) WR-302-03 MikroWin2010 Lite Screening&Curve Fit, basic functions WR-302-04 Mikrowin2010 Full Version 1 Screening&Curve Fit, extended functions WR-302-05 Mikrowin2010 Full Version 2 Screening&Curve Fit&Kinetic, extended functions For more information on MikroWin2010 and it's features, please visit www.mikrotek.de

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ISO 9001
BUREAU VERITAS
Certification
N°189724

Dynamica

pHMaster
pH Meters for Lab and Life

Shown with optional stirrer.

The New pHMaster range of pH meters is designed for the contemporary laboratory environment and also specialized applications in biological and life sciences.

The small footprint belies advanced features augmented with a remarkable easy to use layout and all packaged in a robust casing to withstand the rigors of the laboratory. All models feature a user selectable 1, 2 or 3 points calibration with an automatic buffer recognition function.

The pHMaster BIO is designed with biological and life science applications in mind and is packaged with a combination electrode specific for TRIS buffer preparation thus overcoming the issues of inaccuracy obtained with general pH probes. There is also an optional micro pH electrode with a 4.5mm diameter for small volume applications in 1.5/2ml micro tubes.

For general laboratory applications, the pHMaster LAB is the ideal choice as it is packaged with a convenient 3-in-1 pH/ATC electrode which continuously compensates for any temperature fluctuations. Furthermore a variety of different electrodes is available for many applications involving environmental water, food, solid or semi-solid samples.

The optional smart stirrer provides the homogeneous conditions for more accurate pH measurements.

Features and characteristics

- Compact, light weight design (880g)
- Large, backlit LCD for easy reading
- Intuitive and easy to use interface
- Wide pH measurement range from -2.00 up to 20.00 pH value
- Automatic temperature compensation (ATC)
- Built-in memory for up to 600 sets of stored data
- Electrode holder inclusive
- Acquisition software inclusive for downstream analysis of data
- Industry standard BNC connector accepts other brands of compatible pH electrodes
- Up to 3 points calibration with automatic buffer recognition function

REVOLUTION

Dynamica

Model : pHMaster LAB
General Purpose Laboratory pH Meter

SPECIFICATION		
Range	pH	-2.00 to 20.00 pH
	ORP	±1999 mV
	Temperature	-10 to 110˚C
Resolution	pH	±0.01 pH
	ORP	±0.1% full scale
	Temperature	±0.5˚C
Calibration	No of calibration points	User selectable 1, 2 or 3 points
	Automatic buffer recognition	4.00, 7.00, 10.01 4.00, 6.86, 9.18
Other parameters	ATC	0 to 100˚C
	Data storage	600 groups
	Communication port	RS-232
	Power	DC9V/300mA
	Dimensions (mm)	160 x 190 x 70
	Weight	880 g
Electrode	201T-M - Plastic housing non-refillable pH/ATC 3-in-1 electrodes BNC connector	

Model : pHMaster BIO
Biological and Life Science Application pH Meter

SPECIFICATION		
Range	pH	-2.00 to 20.00 pH
	ORP	±1999 mV
	Temperature	-10 to 110˚C
Resolution	pH	±0.01 pH
	ORP	±0.1% full scale
	Temperature	±0.5˚C
Calibration	No of calibration points	User selectable 1, 2 or 3 points
	Automatic buffer recognition	4.00, 7.00, 10.01 4.00, 6.86, 9.18
Other parameters	ATC	0 to 100˚C
	Data storage	600 groups
	Communication port	RS-232
	Power	DC9V/300mA
	Dimensions (mm)	160 x 190 x 70
	Weight	880 g
Electrode	P16-TRIS - Glass refillable pH 2-in-1 combine electrode (compatible to TRIS buffer), MP500 temperature probe BNC connector	

Electrodes* and Buffer Solution:

1. Type 201-C : Standard Plastic pH Electrode
   - Plastic non-refillable pH 2-in-1 combination electrode
2. Type 200-C : High Accuracy Plastic pH Electrode
   - Plastic refillable pH 2-in-1 combination electrode
3. Type 206-C : Mini Plastic pH Electrode
   - 10mm diameter, 126mm length, plastic refillable pH 2-in-1 combination electrode
4. Type 201T-M : Standard Plastic pH/ATC Electrode
   - Plastic non-refillable pH 3-in-1 combination electrode
5. Type 2501-C : Standard Glass pH Electrode
   - Glass refillable pH 2-in-1 combination electrode
6. Type 2503-C : High Precision Glass pH Electrode
   - Glass refillable pH 2-in-1 combination electrode
7. Type 2503G-C : High Temperature Glass pH Electrode
   - Glass refillable pH 2-in-1 combination electrode
8. Type 2503S-C : Strong Acid Resistance Glass pH Electrode
   - Glass refillable pH 2-in-1 combination electrode
9. Type PP13-MICRO : Micro volume pH Electrode (TRIS compatible)
   - 4.5mm diameter glass refillable pH 2-in-1 combination electrode
10. Type MP500 : Temperature Probe
11. pH Calibration Buffer Solution

Description	Accuracy	Volume
pH 4.00	±0.01 pH (25˚C)	50 ml
pH 7.00	±0.01 pH (25˚C)	50 ml
pH 10.01	±0.01 pH (25˚C)	50 ml

* all electrodes have BNC connectors

Ordering Information

PRODUCT	CATALOG NUMBER
pHMaster LAB – includes electrode holder, type 201T-M plastic pH/ATC 3-in-1 non-refillable electrode, calibration buffers pH4.0 / 7.0 / 10.01, dust cover	PHM-L-220
pHMaster BIO – includes electrode holder, type P16-TRIS glass 2-in-1 refillable electrode, type MP500 temperature probe, calibration buffers pH4.0 / 7.0 / 10.01, dust cover	PHM-B-220
Smart Stirrer (maximum 2300 rpm)	SSTIR

Dynamica

Laboratory pH Meters

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